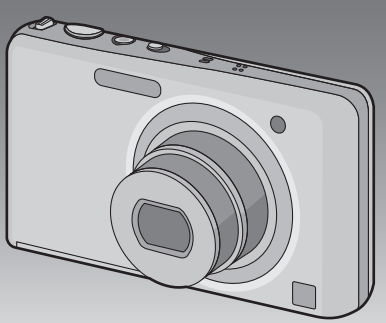
Panasonic

Owner's Manual for advanced features

Digital Camera

Model No. DMC-FX78

LUMIX



Before connecting, operating or adjusting this product, please read the instructions completely.

SDXC™ 3D

VQT3G35-1

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Care of the camera

Do not subject to strong vibration, shock, or pressure.

- The lens, LCD monitor, or external case may be damaged if used in following conditions.
  It may also malfunction or image may not be recorded.
  – Drop or hit the camera.
  – Sit down with the camera in your trousers pocket or forcefully insert it into a full or tight bag, etc.
  – Attach any items such as accessories to the strap attached to the camera.
  – Press hard on the lens or the LCD monitor.



This camera is not dust/drip/water proof.
Avoid using the camera at location with a lot of dust, water, sand, etc.

- Liquids, sand and other foreign material may get into the space around the lens, buttons, etc. Be particularly careful since it may not just cause malfunctions, but it may become unrepairable.
  – Places with a lot of sand or dust.
  – Places where water can come into contact with this unit such as when using it on a rainy day or on a beach.

■ About Condensation (When the lens or the LCD monitor is fogged up)



- Condensation occurs when the ambient temperature or humidity changes. Be careful of condensation since it causes lens or LCD monitor stains, fungus and camera malfunction.
- If condensation occurs, turn the camera off and leave it for about 2 hours. The fog will disappear naturally when the temperature of the camera becomes close to the ambient temperature.

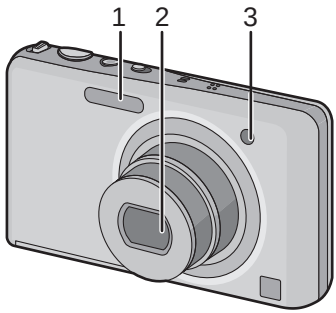
Standard Accessories

Check that all the accessories are supplied before using the camera.

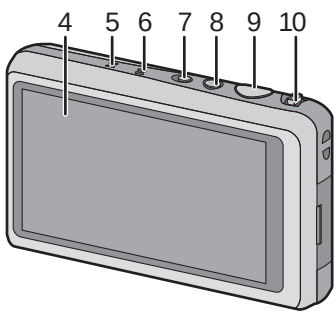
- The accessories and their shape will differ depending on the country or area where the camera was purchased.
  For details on the accessories, refer to Basic Operating Instructions.
- Battery Pack is indicated as **battery pack** or **battery** in the text.
- Battery Charger is indicated as **battery charger** or **charger** in the text.
- SD Memory Card, SDHC Memory Card and SDXC Memory Card are indicated as **card** in the text.
- **The card is optional.**
  You can record or play back pictures on the built-in memory when you are not using a card.
- If any accessories are lost, customers in the USA and Puerto Rico should contact Panasonic's parts department at 1 800 833-9626 and customers in Canada should contact 1 800 99-LUMIX (1-800-995-8649) for further information about obtaining replacement parts.

Names of the Components

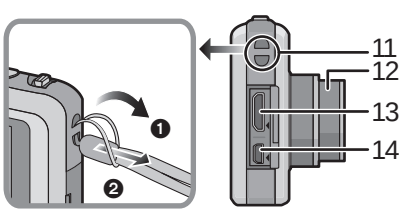
1 Flash (P20)
2 Lens (P4, 139)
3 Self-timer indicator (P74)
AF Assist Lamp (P88)



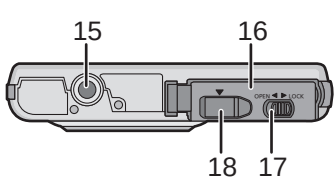
4 Touch panel/LCD monitor (P7, 46, 135)
5 Speaker (P38)
6 Microphone
7 Camera ON/OFF switch (P16)
8 Motion picture button (P26)
9 Shutter button (P19, 30)
10 Zoom lever (P49)



11 Strap eyelet
• Be sure to attach the strap when using the camera to ensure that you will not drop it.
12 Lens barrel
13 [HDMI] socket (P118, 120)
14 [AV OUT/DIGITAL] socket (P117, 125, 128, 131)



15 Tripod receptacle
16 Card/Battery door (P11)
17 Release lever (P11)



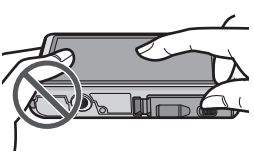
18 DC coupler cover (P12)
• When using an AC adaptor, ensure that the Panasonic DC coupler (optional) and AC adaptor (optional) are used. For connection details, refer to P12.

How to Use the Touch Panel

This touch panel is a type that detects pressure.

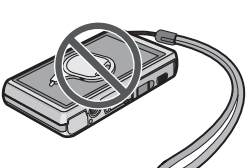
Touch the screen To touch and release the touch panel.	**Drag** A movement without releasing the touch panel.
	
Use this to perform tasks such as selecting icons or images displayed on the touch panel. • It may not operate properly when multiple icons are touched simultaneously, so try to touch the center of the icon.	This is used when performing tasks such as moving to the next image by dragging horizontally, or changing the range of the displayed image. This can also be used to perform tasks such as switching the screen by operating the slide bar.

Note



- If you use a commercially available liquid crystal protection sheet, please follow the instructions that accompany the sheet. (Some liquid crystal protection sheets may impair visibility or operability.)
- **Apply a little extra pressure** when touching if you have a commercially available protection sheet affixed or if you feel it is not responding well.
- Touch panel will not operate properly when the hand holding this unit is pressing on the touch panel.
- Do not press using anything with a sharp tip or anything hard, except for the supplied stylus pen.
- Do not operate with your fingernails.
- Wipe the LCD monitor with dry soft cloth when it gets dirty with finger prints and others.
- Do not scratch or press the LCD monitor too hard.
- For information about the icons displayed on the touch panel, refer to “Screen Display” on P135.

■ About the Stylus pen



It is easier to use the stylus pen (supplied) for detailed operation or if it is hard to operate with your fingers.

- Do not place it where small children can reach.
- Do not place the stylus pen on the LCD monitor when storing. LCD monitor may break when the stylus pen is pressed strongly against the LCD monitor.

Charging the Battery

■ **About batteries that you can use with this unit**

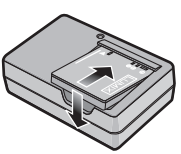
It has been found that counterfeit battery packs which look very similar to the genuine product are made available to purchase in some markets. Some of these battery packs are not adequately protected with internal protection to meet the requirements of appropriate safety standards. There is a possibility that these battery packs may lead to fire or explosion. Please be advised that we are not liable for any accident or failure occurring as a result of use of a counterfeit battery pack. To ensure that safe products are used we would recommend that a genuine Panasonic battery pack is used.

- **Use the dedicated charger and battery.**

Charging

- **The battery is not charged when the camera is shipped. Charge the battery before use.**
- Charge the battery with the charger indoors.

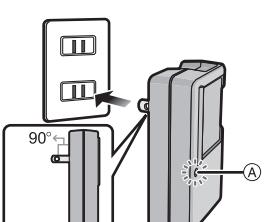
1 **Attach the battery paying attention to the direction of the battery.**



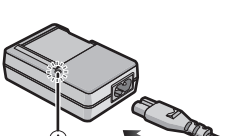
2 **Connect the charger to the electrical outlet.**

- Disconnect the charger from the electrical socket and detach the battery after charging is completed.

plug-in type



inlet type



■ **About the [CHARGE] indicator**

The [CHARGE] indicator turns on:

The [CHARGE] indicator Ⓐ is turned on during charging.

The [CHARGE] indicator turns off:

The [CHARGE] indicator Ⓐ will turn off once the charging has completed without any problem.

- **When the [CHARGE] indicator flashes**
  - The battery temperature is too high or too low. It is recommended to charge the battery again in an ambient temperature of between 10 °C to 30 °C (50 °F to 86 °F).
  - The terminals of the charger or the battery are dirty. In this case, wipe them with a dry cloth.

■ **Charging time**

Charging time	Approx. 120 min

- **The indicated charging time is for when the battery has been discharged completely. The charging time may vary depending on how the battery has been used. The charging time for the battery in hot/cold environments or a battery that has not been used for long time may be longer than normal.**

Note

- **Do not leave any metal items (such as clips) near the contact areas of the power plug. Otherwise, a fire and/or electric shocks may be caused by short-circuiting or the resulting heat generated.**
- The battery becomes warm after using it and during and after charging. The camera also becomes warm during use. This is not a malfunction.
- The battery can be recharged even when it still has some charge left, but it is not recommended that the battery charge be frequently topped up while the battery is fully charged. (Since characteristic swelling may occur.)

Approximate operating time and number of recordable pictures

■ **Battery indication**

The battery indication is displayed on the LCD monitor.



- The indication turns red and blinks if the remaining battery power is exhausted. Recharge the battery or replace it with a fully charged battery.

■ Recording still pictures

Number of recordable pictures	**Approx. 200 pictures**	By CIPA standard in Normal Picture Mode
Recording time	**Approx. 100 min**	

Recording conditions by CIPA standard

- CIPA is an abbreviation of [Camera & Imaging Products Association].
- Temperature: 23 °C (73.4 °F)/Humidity: 50%RH when LCD monitor is on.
- Using a Panasonic SD Memory Card (32 MB).
- Using the supplied battery.
- Starting recording 30 seconds after the camera is turned on. (When the Optical Image Stabilizer function is set to [ON].)
- **Recording once every 30 seconds** with full flash every second recording.
- Changing the zoom magnification from Tele to Wide or vice versa in every recording.
- Turning the camera off every 10 recordings and leaving it until the temperature of the battery decreases.

The number of recordable pictures varies depending on the recording interval time. If the recording interval time becomes longer, the number of recordable pictures decreases. [For example, if you were to take one picture every two minutes, then the number of pictures would be reduced to approximately one-quarter of the number of pictures given above (based upon one picture taken every 30 seconds).]

■ Recording motion pictures

	[AVCHD] (Recording with picture quality set to [FSH])	**[Motion JPEG] (Recording with picture quality set to [HD])**
Recordable time	**Approx. 60 min**	**Approx. 65 min**
Actual recordable time	**Approx. 30 min**	**Approx. 33 min**

- These times are for an ambient temperature of 23 °C (73.4 °F) and a humidity of 50%RH. Please be aware that these times are approximate.
- Actual recordable time is the time available for recording when repeating actions such as switching the power supply [ON]/[OFF], starting/stopping recording, zoom operation etc.
- Maximum time to record motion pictures continuously with [FSH] in [AVCHD] is 29 minutes 59 seconds.
- Motion picture recorded continuously in [Motion JPEG] is up to 2 GB. Only the maximum recordable time for 2 GB is displayed on the screen.

■ Playback

Playback time	**Approx. 150 min**

Note

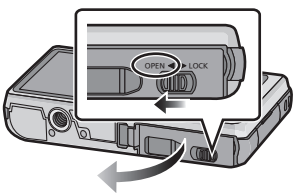
- **The operating times and number of recordable pictures will differ according to the environment and the operating conditions.**
  For example, in the following cases, the operating times shorten and the number of recordable pictures is reduced.
  – In low-temperature environments, such as on ski slopes.
  – When using [LCD Mode].
  – When operations such as flash and zoom are used repeatedly.
- When the operating time of the camera becomes extremely short even after properly charging the battery, the life of the battery may have expired. Buy a new battery.

Inserting and Removing the Card (optional)/the Battery

- Check that this unit is turned off.
- We recommend using a Panasonic card.

1 **Slide the release lever in the direction of the arrow and open the card/battery door.**

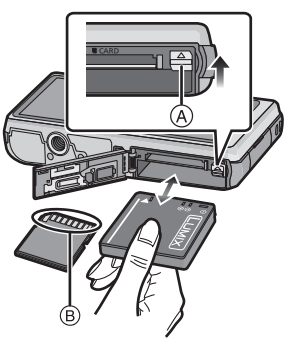
- **Always use genuine Panasonic batteries.**
- **If you use other batteries, we cannot guarantee the quality of this product.**



2 **Battery: Being careful about the battery orientation, insert all the way until you hear a locking sound and then check that it is locked by lever Ⓐ.**
Pull the lever Ⓐ in the direction of the arrow to remove the battery.

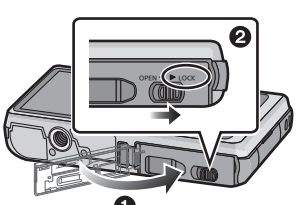
Card: Push it securely all the way until you hear a “click” while being careful about the direction in which you insert it. To remove the card, push the card until it clicks, then pull the card out upright.

Ⓑ: Do not touch the connection terminals of the card.



3 **❶:Close the card/battery door.**

❷:Slide the release lever in the direction of the arrow.

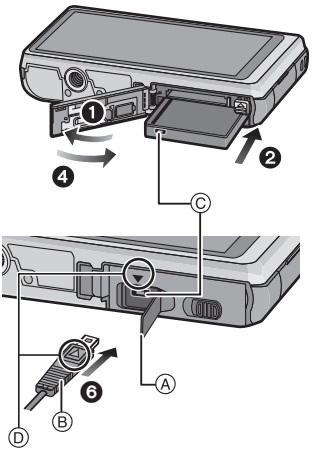


Note

- Remove the battery after use.
- The battery will be exhausted if left for a long period of time after being charged.
- Turn the camera off and wait for the “LUMIX” display on the LCD monitor to clear before removing the card or battery. (Otherwise, this unit may no longer operate normally and the card itself may be damaged or the recorded pictures may be lost.)

Using an AC adaptor (optional) and a DC coupler (optional) instead of the battery

The AC Adaptor (optional) can only be used with the designated Panasonic DC coupler (optional). The AC adaptor (optional) cannot be used by itself.



1. Open the card/battery door.
2. Insert the DC coupler, being careful of the direction.
3. Open the DC coupler cover Ⓐ.
   - Push open the coupler cover from the interior.
4. Close the card/battery door.
5. Plug the AC adaptor into an electrical outlet.
6. Connect the AC adaptor Ⓑ to the [DC IN] socket Ⓒ of the DC coupler.

Ⓓ Align the marks and insert.

- Ensure that only the AC adaptor and DC coupler for this camera are used. Using any other equipment may cause damage.

Note

- Always use a genuine Panasonic AC adaptor (optional).
- When using an AC adaptor, use the AC cable supplied with the AC adaptor.
- Some tripods cannot be attached when the DC coupler is connected.
- Make sure to unplug the AC adaptor when you open the card/battery door.
- If the AC adaptor and DC coupler are not necessary, then remove them from the digital camera. Also, please keep the DC coupler cover closed.
- Also read the operating instructions for the AC adaptor and DC coupler.

About the Built-in Memory/the Card



The following operations can be performed using this unit.

- **When a card has not been inserted: Pictures can be recorded on the built-in memory and played back.**
- **When a card has been inserted: Pictures can be recorded on the card and played back.**
- **When using the built-in memory**
  [IN]→[IN] **(access indication**∗**)**
- **When using the card**
  (access indication∗**)**

∗ The access indication lights red when pictures are being recorded on the built-in memory (or the card).

Built-in Memory

- **You can copy the recorded pictures to a card.** **(P112)**
- **Memory size: Approx. 70 MB**
- The access time for the built-in memory may be longer than the access time for a card.

Card

The following cards which conform to the SD video standard can be used with this unit. (These cards are indicated as **card** in the text.)

Type of card which can be used with this unit	Remarks
SD Memory Card (8 MB to 2 GB)	• **Use a card with SD Speed Class∗ with "Class 4" or higher when recording motion pictures in [AVCHD]. Also, use a card with SD Speed Class with "Class 6" or higher when recording motion pictures in [Motion JPEG].** • SDHC Memory Card can be used with SDHC Memory Card or SDXC Memory Card compatible equipment. • SDXC Memory Card can only be used with SDXC Memory Card compatible equipment. • Check that the PC and other equipment are compatible when using the SDXC Memory Cards. **http://panasonic.net/avc/sdcard/information/SDXC.html** • Only the cards with capacity listed left can be used.
SDHC Memory Card (4 GB to 32 GB)	
SDXC Memory Card (48 GB, 64 GB)	

∗ SD Speed Class is the speed standard regarding continuous writing. Check via the label on the card, etc.

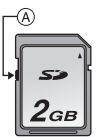
e.g.:

CLASS 4 CLASS 6

• Please confirm the latest information on the following website.
http://panasonic.jp/support/global/cs/dsc/
(This Site is English only.)

Note

- **Do not turn this unit off, remove its battery or card, or disconnect the AC adaptor (optional) when the access indication is lit (when pictures are being written, read or deleted, or the built-in memory or the card is being formatted). Furthermore, do not subject the camera to vibration, impact or static electricity.**
  The card or the data on the card may be damaged, and this unit may no longer operate normally.
  If operation fails due to vibration, impact or static electricity, perform the operation again.
- Write-Protect switch Ⓐ provided (When this switch is set to the [LOCK] position, no further data writing, deletion or formatting is possible. The ability to write, delete and format data is restored when the switch is returned to its original position.)
- The data on the built-in memory or the card may be damaged or lost due to electromagnetic waves, static electricity or breakdown of the camera or the card. We recommend storing important data on a PC etc.
- Do not format the card on your PC or other equipment. Format it on the camera only to ensure proper operation. (P45)
- Keep the Memory Card out of reach of children to prevent swallowing.



Approximate number of recordable pictures and available recording time

■ About the display of the number of recordable pictures and available recording time

• You can confirm the number of recordable pictures and available recording time by touching [DISP.] several times. (P46)

Ⓐ Number of recordable pictures
Ⓑ Available recording time



■ Number of recordable pictures

• [+99999] is displayed if there are more than 100,000 pictures remaining.

Aspect ratio [4:3], Quality [▪▪▪]

Picture size	Built-in Memory (Approx. 70 MB)	2 GB	4 GB	16 GB
12M	15	380	760	3120
5M(EZ)	26	650	1300	5300
0.3M(EZ)	410	10050	19940	81340

■ Available recording time (when recording motion pictures)

[AVCHD]

Recording quality setting	Built-in Memory (Approx. 70 MB)	2 GB	4 GB	16 GB
FSH	–	14 min 00 s	30 min 00 s	2 h 4 min
SH	–	14 min 00 s	30 min 00 s	2 h 4 min

[Motion JPEG]

Recording quality setting	Built-in Memory (Approx. 70 MB)	2 GB	4 GB	16 GB
HD	–	8 min 10 s	16 min 20 s	1 h 7 min
VGA	–	21 min 30 s	43 min 00 s	2 h 56 min
QVGA	2 min 30 s	1 h 2 min	2 h 4 min	8 h 28 min

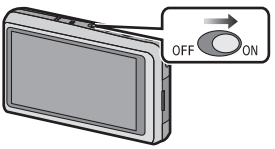
• The number of recordable pictures and the available recording time are an approximation. (These vary depending on the recording conditions and the type of card.)
• The number of recordable pictures and the available recording time varies depending on the subjects.
• Number of recordable pictures/available recording time for the card may decrease when [Upload Set] is performed.
• Maximum time to record motion pictures continuously with [FSH] in [AVCHD] is 29 minutes 59 seconds.
• Motion picture recorded continuously in [Motion JPEG] is up to 2 GB. Only the maximum recordable time for 2 GB is displayed on the screen.

Setting Date/Time (Clock Set)

• The clock is not set when the camera is shipped.

1 **Turn the camera on.**

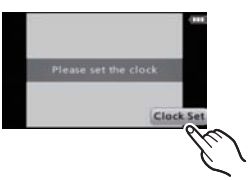
• If the language select screen is not displayed, proceed to step **4**.



2 **Touch [Language Set].**

3 **Select the language, and then touch [Set].**

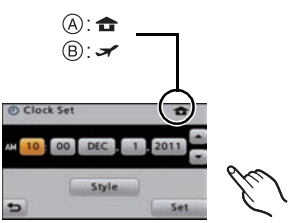
4 **Touch [Clock Set].**



5 **Touch the items you wish to set (Year/Month/Day/Hours/Minutes), and set using [▲]/[▼].**

Ⓐ: Time at the home area
Ⓑ: Time at the travel destination

• You can continue to switch the settings by continuously touching [▲]/[▼].
• Touch [⮌] to cancel the date and time settings without setting a date and time.



To set the display order and the time display format.

• Touch [Style] to display the settings screen for setting display order/time display format.



6 **Touch [Set] to set.**

7 **Touch [Set] in the confirmation screen.**

Changing the Clock Setting

Select [Clock Set] in the [Rec] or [Setup] menu. (P36)

- It can be changed in steps **5** and **6** to set the clock.
- **The clock setting is maintained for 3 months using the built-in clock battery even without the battery. (Leave the charged battery in the unit for 24 hours to charge the built-in battery.)**

Note

- If the clock is not set, the correct date cannot be printed when you order a photo studio to print the picture, or when you stamp the date on the pictures with [Date Stamp] (P89) or [Text Stamp] (P102).
- If the clock is set, the correct date can be printed even if the date is not displayed on the screen of the camera.

Selecting the [Rec] Mode

1 **Touch [ ].**

- When operating from the Playback Mode, touch [ ] to switch to Recording Mode. Once it is switched to Recording Mode, [ ] is displayed next to the icon, so touch it again.



2 **Touch the mode icon.**



■ **List of [Rec] Modes**

	Normal Picture Mode (P19)
The subjects are recorded using your own settings.	
iA	**Intelligent Auto Mode** (P30)
The subjects are recorded using settings automatically selected by the camera.	
SCN	**Scene Mode** (P53)
This allows you to take pictures that match the scene being recorded.	
3D	**3D Photo Mode** (P60)
Takes a 3D picture.	
	Cosmetic Mode (P61)
Takes a picture adjusting the skin texture.	
	My Color Mode (P62)
Use this mode to check coloring effects, select a color mode from among 8 color modes, and then take pictures.	

Note

- When the mode has been switched from [Playback] Mode to [Rec] Mode, the previously set [Rec] Mode will be set.

[Rec] Mode:

Taking Pictures with Your Favorite Settings
(Normal Picture Mode)

The camera automatically sets the shutter speed and the aperture value according to the brightness of the subject.
You can take pictures with greater freedom by changing various settings in the [Rec] menu.

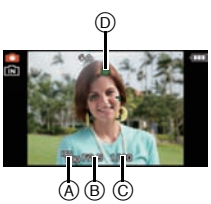
1 **Touch [ ].**

2 **Touch [ ].**



3 **Aim the AF area at the point you want to focus on.**

4 **Press the shutter button halfway to focus.**





Ⓐ ISO sensitivity
Ⓑ Aperture value
Ⓒ Shutter speed

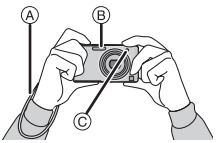
- The focus indication Ⓓ (green) lights when the subject is focused.
- The minimal distance (how close you can be to the subject) will change depending on the zoom factor. Please check with the recordable range display on the screen. (P22)
- Aperture value and shutter speed is displayed in red when correct exposure is not achieved. (Exclude when using a flash)

5 **Press the halfway pressed shutter button fully to take a picture.**



Tips for taking good pictures

- **Be sure to attach the strap when using the camera to ensure that you will not drop it.**
- Hold the camera gently with both hands, keep your arms still at your side and stand with your feet slightly apart.
- Be careful not to move the camera when you press the shutter button.
- Do not cover the flash or the AF Assist Lamp with your fingers or other objects.
- Do not touch the front of the lens.



Ⓐ Strap
Ⓑ Flash
Ⓒ AF Assist Lamp

■ Direction Detection Function

Pictures recorded with the camera held vertically are played back vertically (rotated). (Only when [Rotate Disp.] (P44) is set)

- The Direction Detection function may not operate correctly if recording is performed with the camera aimed up or down.
- Motion pictures taken with the camera held vertically are not displayed vertically.

Preventing jitter (camera shake)

When the jitter alert [((📷))] appears, use [Stabilizer] (P89), a tripod or the self-timer (P74).

- Shutter speed will be slower particularly in the following cases. Keep the camera still from the moment the shutter button is pressed until the picture appears on the screen. We recommend using a tripod.
  – Slow sync./Red-Eye Reduction
  – In [Panorama Assist], [Night Portrait], [Night Scenery], [Party], [Candle Light], [Starry Sky] or [Fireworks] in Scene Mode
  – In [High Dynamic] in My Color Mode
  – When the shutter speed is slowed in [Min. Shtr Speed]

[Rec] Mode:

Taking pictures using the Touch Shutter function

Just by touching the subject to focus, it will focus on the subject and take the picture automatically.

1 Touch [ ].

- Icon will change to [ ], and taking a picture with the Touch Shutter function becomes possible.



2 Touch the subject you wish to focus on, and then take a picture.

- AF area with same function as [ ] in AF Mode is displayed at the position you touch, and a picture is taken when it is focused. (It cannot be set to edge of the screen)

3 Touch [ ] to cancel the Touch Shutter function.

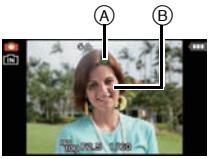
Note

- Touch operation is not possible at the top right of the LCD monitor even if image is displayed.
- Touch Shutter setting is memorized even if the camera is turned off.
- You cannot record motion pictures with the Touch Shutter.

Focusing

Aim the AF area at the subject, and then press the shutter button halfway.

Focus	When the subject is focused	When the subject is not focused
Focus indication Ⓐ	On	Blinks
AF area Ⓑ	White→Green	White→Red
Sound	Beeps 2 times	Beeps 4 times



• AF area is displayed larger during the digital zoom or when it is dark.

■ About focus range

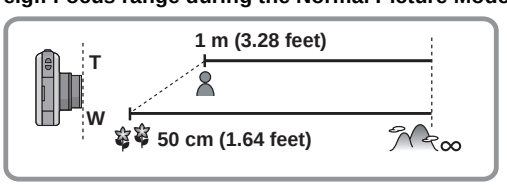
The focus range is displayed when operating the zoom.



• The focus range is displayed in red when it is not focused after pressing the shutter button halfway.

The focus range may change gradually depending on the zoom position.

e.g.: Focus range during the Normal Picture Mode

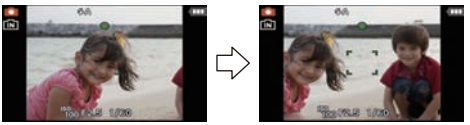


■ **When the subject is not in focus (such as when it is not in the center of the composition of the picture you want to take)**

1 Aim the AF area at the subject, and then **press the shutter button halfway** to fix the focus and exposure.

2 **Press and hold the shutter button halfway** while moving the camera as you compose the picture.

• You can repeatedly retry the actions in step **1** before pressing the shutter button fully.



■ **Subjects and recording conditions which are difficult to focus**

• Fast-moving subjects, extremely bright subjects or subjects without contrast
• When recording subjects through windows or near shiny objects
• When it is dark or when jitter occurs
• When the camera is too close to the subject or when taking a picture of both distant and near subjects

[Playback] Mode:

Playing Back Pictures ([Normal Play])

Touch [ ].

• The display switches to normal playback.

Note

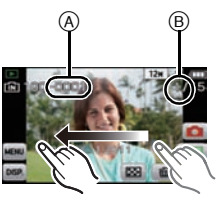
• This camera complies with the DCF standard “Design rule for Camera File system” established by JEITA “Japan Electronics and Information Technology Industries Association” and with Exif “Exchangeable Image File Format”. Files which do not comply with the DCF standard cannot be played back.
• Pictures recorded with other camera may not be able to playback on this unit.
• The lens barrel retracts about 15 seconds after switching from [Rec] Mode to [Playback] Mode.

Forward or rewind the image

Drag (P7) the screen horizontally.

– Forward: drag from right to left
– Rewind: drag from left to right

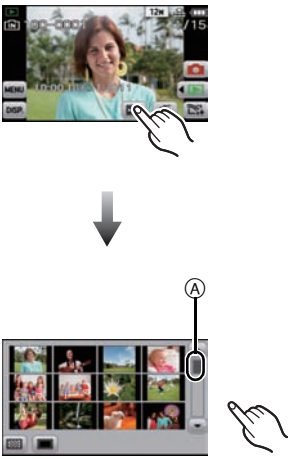
Ⓐ File number
Ⓑ Picture number



• Speed of picture forwarding/rewinding changes depending on the playback status.
• You can forward or rewind pictures continuously by keeping your finger on the left or right sides of the screen after forwarding/rewinding a picture.
(Pictures are displayed reduced in size.)

Displaying Multiple Screens (Multi Playback)

Touch [ ].

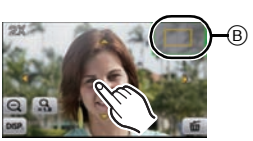


Ⓐ Slide bar

- It is possible to switch the playback screen by touching the following icons.
  - –[ ]: 1 screen
  - –[ ]: 12 screens
  - –[ ]: 30 screens
  - –[ ]: Calendar screen display
- Switch the screen by touching [▲]/[▼] if these are displayed on the slide bar.
- The screen can be switched by dragging the slide bar up or down (P7).
- The screen can be switched gradually by dragging the screen up or down (P7).
- Pictures displayed using [ ] cannot be played back.

Using the Playback Zoom

Touch the part to enlarge firmly.



1×→2×→4×→8×→16×

- You can also enlarge/reduce the picture by moving the zoom lever.
- When you change the magnification, the zoom position indication Ⓑ appears for about 1 second.
- The more a picture is enlarged, the more its quality deteriorates.
- You can move the enlarged part by dragging (P7) the screen.
- Picture will return to the original size (1×) by touching [ ].
- When you touch [ ], the magnification becomes lower.

[Rec] Mode:

Recording Motion Pictures

This can record full high definition motion pictures compatible with the AVCHD format or motion pictures recorded in Motion JPEG.
Audio will be recorded in monaural.

1 Start recording by pressing the motion picture button.



Ⓐ Available recording time
Ⓑ Elapsed recording time

- You can record motion pictures fitting each Recording Mode.
- Release the motion picture button right after you press it.
- The recording state indicator (red) Ⓒ will flash while recording motion pictures.
- For the setting of the [Rec Mode] and [Rec Quality], refer to P90.

2 Stop the recording by pressing the motion picture button again.

Note

- The available recording time displayed on the screen may not decrease regularly.
- Depending on the type of the card, the card access indication may appear for a while after recording motion pictures. This is not a malfunction.
- The screen may be blacked out momentarily, or the unit may record noise due to static electricity or electromagnetic waves etc. depending on the environment of the motion picture recording.
- When operating the zoom in recording motion pictures, it may take time to come into focus.
- If you operate the zoom etc. while recording motion pictures, the sound of the operation may be recorded.
- Zoom speed may be slower than normal in recording motion pictures.
- If the Extended Optical Zoom was used before pressing the motion picture button, recordable area will be changed drastically since these settings are canceled.
- Even if the aspect ratio setting is the same in still and motion pictures, the angle of view may change at the start of the motion picture recording.
  When [Rec Area] (P40) is set to [ON], angle of view during motion picture recording is displayed.
- It is recommended to use a fully charged battery or AC adaptor (optional) and DC coupler (optional) when recording motion pictures.
- If while recording motion pictures using the AC adaptor (optional) and the power supply is cut off due to a power outage or if the AC adaptor (optional) is disconnected etc., the motion picture being recorded will not be recorded.
- It will be recorded in following categories for certain Scene Modes. A motion picture recording matching each scene will be performed for the ones not listed below.

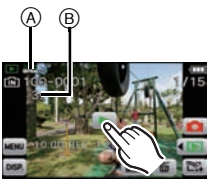
Selected Scene Mode	Scene Mode while recording motion picture
[Baby1]/[Baby2]	Portrait Mode
[Night Portrait], [Night Scenery], [Handheld Night Shot], [Starry Sky]	Low Light Mode
[Panorama Assist], [Sports], [Pet], [Hi-Speed Burst], [Flash Burst], [Fireworks], [Photo Frame]	Normal motion picture

[Playback] Mode:

Playing Back Motion Pictures

- This unit was designed to play motion pictures using the AVCHD and QuickTime Motion JPEG formats that were taken with this model (only).
- Motion pictures in AVCHD format that can be played back on this unit are [AVCHD] motion pictures that were recorded with this unit, AVCHD format (including [AVCHD Lite]) motion pictures recorded with Panasonic digital cameras (LUMIX) only.

Select a picture with a Motion Picture icon (such as [QVGA]/[FSH]) and then touch [▶] to play back.



Ⓐ Motion picture icon
Ⓑ The motion picture recording time

- After playback starts, the elapsed playback time is displayed on the screen.
  For example, 8 minutes and 30 seconds is displayed as [8m30s].
- Some information (recording information, etc.) is not displayed for motion pictures recorded in [AVCHD].

■ Operations performed during Motion Picture Playback

1 Display control panel by touching screen.

• If no operation is performed for about 2 seconds, it will return to original status.

2 Operate control panel by touching.

[▶/II]	Play/Pause	[■]	Stop
[◀◀]	Fast rewind	[▶▶]	Fast forward
[◀II]	Frame-by-frame rewind (while pausing)	[II▶]	Frame-by-frame forward (while pausing)
[+]	Increase volume level	[−]	Reduce volume level

• About fast forward/rewind playback

– Touch [▶▶] during playback to fast forward (touch [◀◀] to fast rewind). The fast forward/rewind speed increases if you touch [▶▶]/[◀◀] again. (The display on the screen changes from [▶▶] to [▶▶▶].)

– Touch [▶/II] to resume normal playback speed.

– When using a high capacity card, it is possible that fast rewinding may be slower than usual.

Note

• To play back the motion pictures recorded by this unit on a PC, use the “QuickTime” or the “PHOTOfunSTUDIO” software on the CD-ROM (supplied).

• Motion pictures recorded with other camera may not be able to playback on this unit.

[Rec] Mode: iA

Taking Pictures Using the Automatic Function
(Intelligent Auto Mode)

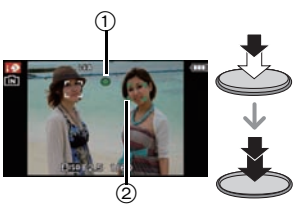
The camera will set the most appropriate settings to match the subject and the recording conditions so we recommend this mode for beginners or those who want to leave the settings to the camera and take pictures easily.

- The following functions are activated automatically.
  - Scene Detection/[Stabilizer]/Intelligent ISO sensitivity control/Face Detection/[Quick AF]/[i.Exposure]/[Red-Eye Removal]/Backlight Compensation/[i.Resolution]/[i.ZOOM]/Auto White Balance/[AF Assist Lamp]/[Active Mode]/[Continuous AF]/[Wind Cut]
- Image quality is fixed to [▦].

1 Touch [◀📷].

2 Touch [iA].

3 Press the shutter button halfway to focus and then press it fully to take the picture.



① Focus indication

- The AF area ② is displayed around the subject's face by the Face Detection function. In other cases, it is displayed at the point on the subject which is in focus.
- When the subject is touched, AF Tracking function works. For details, refer to P47.

Changing the settings

Following menus can be set with the Intelligent Auto Mode.

Menu	Item
[Rec]	[Flash]*/[Selftimer]/[Picture Size]*/[Burst]/[Color Mode]*/ [Motion Deblur]/[Face Recog.]
[Motion Picture]	[Rec Mode]/[Rec Quality]
[Setup]	[Clock Set]/[World Time]/[Beep]*/[Language]/[Stabilizer Demo.]

• For the setting method of the menu, refer to P36.
* Settings may be different from other [Rec] Modes.

• **Menus specific to Intelligent Auto Mode**
– Color setting of [Happy] is available in [Color Mode]. It is possible to automatically take a picture with a higher level of brilliance for the color brightness and vividness.
– When [Motion Deblur] is set to [ON], [((📷))] is displayed on the recording screen. The camera automatically sets an optimal shutter speed according to the motion of the subject to reduce blur on the subject. (In such a case, the number of pixels may be reduced.)

■ About the flash

• When [iA] is selected, [iA], [iA👁], [iS👁] or [iS] is set depending on the type of subject and brightness.
• When [iA👁] or [iS👁] is set, Digital Red-Eye Correction is enabled.
• Shutter speed will be slower during [iS👁] or [iS].

Scene Detection

When the camera identifies the optimum scene, the icon of the scene concerned is displayed in blue for 2 seconds, after which its color changes to the usual red.

When taking pictures

iA →	[i-Portrait]	
	[i-Scenery]	
	[i-Macro]	
	[i-Night Portrait]	• Only when [iA] is selected
	[i-Night Scenery]	
	[i-Sunset]	
	[i-Baby]*	

When recording motion pictures

iA →	[i-Portrait]
	[i-Scenery]
	[i-Low Light]
	[i-Macro]

- [iA] is set if none of the scenes are applicable, and the standard settings are set.
- When [i], [i] or [i] is selected, the camera automatically detects a person's face, and it will adjust the focus and exposure. **(Face Detection)**
- If a tripod is used, for instance, and the camera has judged that camera shake is minimal when the Scene Mode has been identified as [i], the shutter speed will be set to a maximum of 8 seconds.Take care not to move the camera while taking pictures.
- When [Face Recog.] is set to [ON], and the face similar to the registered face is detected, [R] is displayed in the top right of [i], [i] and [i].

* When [Face Recog.] is set to [ON], [i] will be displayed for birthdays of registered faces already set only when the face of a person 3 years old or younger is detected.

Note

- Due to factors such as size, contrast, motion and proximity a different mode may be identified for the same subject.
  - Subject conditions: When the face is bright or dark, the size of the subject, the color of the subject, the distance to the subject, the contrast of the subject, when the subject is moving
  - Recording conditions: Sunset, sunrise, under low brightness conditions, when the camera is shaken, when zoom is used
- For the best results, it is recommended that you take pictures in the appropriate Recording Mode.
- **The Backlight Compensation**
  Backlight refers to when light comes from the back of a subject.
  In this case, the subject will become dark, so this function compensates the backlight by brightening the whole of the picture automatically.

[Playback] Mode:

Deleting Pictures

Once deleted, pictures cannot be recovered.

• Pictures on the built-in memory or the card, that are being played back will be deleted.

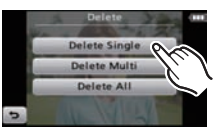
To delete a single picture

1 **Select the picture to be deleted, and then touch [ ].**



2 **Touch [Delete Single].**

• Confirmation screen is displayed.
Picture is deleted by selecting [Yes].



To delete multiple pictures (up to 50) or all the pictures

1 **Touch [🗑].**

2 **Touch [Delete Multi] or [Delete All].**

- [Delete All] → Confirmation screen is displayed.
  Picture is deleted by selecting [Yes].
- It is possible to delete all pictures except the ones set as favorite when [All Delete Except★] is selected with the [Delete All] set.

3 **(When [Delete Multi] is selected) Touch the picture to be deleted.**
(repeat this step)



- [🗑] appears on the selected pictures. Touching again cancels the setting.

4 **(When [Delete Multi] is selected) Touch [OK].**

- Confirmation screen is displayed.
  Picture is deleted by selecting [Yes].

Note

- Do not turn the camera off while deleting. Use a battery with sufficient battery power or the AC adaptor (optional) and DC coupler (optional).
- Depending on the number of pictures to be deleted, it may take some time to delete them.
- If pictures do not conform to the DCF standard or are protected, they will not be deleted even if [Delete All] or [All Delete Except★] is selected.

Selecting Application

You can process pictures you record or register them to specific albums, etc.
The atmosphere of pictures can be arranged, or gorgeous impressions can be added to faces so that favorite pictures can be stored for you to enjoy.
Pictures can be grouped and registered to specific albums so that you can quickly find just those you want to see.

1 **Touch [ ] on the playback screen.**



2 **Touch the icon.**

■ **List of Application**

	[Beauty Retouch] (P113)
Tone of skin or impression of faces can be changed.	
	[Art Retouch] (P115)
You can modify the saturation or brightness of the picture.	
	[My Photo Album] (P116)
Pictures you want to keep can be registered in specific albums.	

Setting the Menu

The camera comes with menus that allow you to choose the settings for taking pictures and playing them back as you like and menus that enable you to have more fun with the camera and use it more easily.
In particular, the [Setup] menu contains some important settings relating to the camera's clock and power. Check the settings of this menu before proceeding to use the camera.

Setting menu items

1 **Touch [MENU].**



2 **Touch the menu icon.**





Menu	Description of settings
[Rec] **(P71 to 89)** **([Rec] Mode only)**	This menu lets you set the Coloring, Sensitivity, Aspect Ratio, Number of pixels and other aspects of the pictures you are recording.
[Motion Picture] **(P90 to 92)** **([Rec] Mode only)**	This menu lets you set the [Rec Mode], [Rec Quality], and other aspects for motion picture recording.
[Playback] **(P100 to 112)** **([Playback] Mode only)**	This menu lets you set the Protection, Cropping or Print Settings, etc. of recorded pictures.
[Setup] **(P38 to 45)**	This menu lets you perform the clock settings, select the operating beep tone settings and set other settings which make it easier for you to operate the camera. The [Setup] menu can be set from either the [Rec] Mode or [Playback] Mode.

3 Touch the menu item.

- Touch and hold the menu item to display the information.
- Touch [◁]/[▷] to switch menu items.
- Screen at right is an example of selecting [AF Mode] in [Rec] mode Menu.



4 Touch the Settings.

- Depending on the menu item, its setting may not appear or it may be displayed in a different way.
- Screen at right is an example to set the [AF Mode] from [▪] (1-area-focusing) to [👤] (Face Detection).



■ Close the menu

Touch [↩] several times or press the shutter button halfway.

Note

- Due to the camera's specifications, it may not be possible to set some of the functions or some functions may not work in some of the conditions under which the camera is used.

About the Setup Menu

[Clock Set], [Economy] and [Auto Review] are important items. Check their settings before using them.
For details on how to select the [Setup] menu settings, refer to P36.

[Clock Set]	—

• Refer to P16 for details.

[World Time]	**[Destination]:** Travel destination area **[Home]:** Your home area

• Refer to P70 for details.

[Travel Date]	**[Travel Setup]:** **[SET]/[OFF]**	**[Location]:** **[SET]/[OFF]**

• Refer to P68 for details.

[Beep]	This allows you to set the beep and shutter sound.	
	[Beep Level]: **[ ] (Low)** **[ ] (High)** **[ ] (Muted)**	**[Shutter Vol.]:** **[ ] (Low)** **[ ] (High)** **[ ] (Muted)**
	[Beep Tone]: **[❶]/[❷]/[❸]**	**[Shutter Tone]:** **[❶]/[❷]/[❸]**

[Volume]	Adjust the volume of the speaker to any of 7 levels.

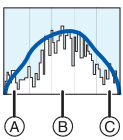
• When you connect the camera to a TV, the volume of the TV speakers does not change.

LCD **[LCD Mode]**	These menu settings make it easier to see the LCD monitor when you are in bright places or when you are holding the camera high above your head.
	[Auto Power LCD]*: The brightness is adjusted automatically depending on how bright it is around the camera. **[Power LCD]:** The LCD monitor becomes brighter and easier to see even when taking pictures outdoors. **[High Angle]*:** The LCD monitor is easier to see when taking pictures with the camera held high above your head. **[OFF]** * Can be set only when [Rec] mode is set.

- High Angle Mode is also canceled if you turn the camera off or [Sleep Mode] is activated.
- The brightness of the pictures displayed on the LCD monitor is increased so some subjects may appear different from real life on the LCD monitor. However, this does not affect the recorded pictures.
- The LCD monitor automatically returns to normal brightness after 30 seconds when recording in Power LCD Mode. It will light up brightly again by button or touch operation.
- The number of recordable pictures decreases in [LCD Mode].

[Guide Line]	Set the pattern of the guidelines displayed when taking pictures. You can also set whether or not to have the recording information displayed when the guidelines are displayed. (P46)	
	[Rec. Info.]: **[ON]/[OFF]**	**[Pattern]:** **[▦]/[⊠]**

- When you align the subject on the horizontal and vertical guidelines or the cross point of these lines, you can take pictures with well-designed composition by viewing the size, the slope and the balance of the subject.
- The [Pattern] setting is fixed to [▦] in the Intelligent Auto Mode.
- In [Photo Frame] in Scene Mode, the guideline is not displayed.

[Histogram]	This allows you to set either to display or not display the histogram.
	[ON]/[OFF]
	A Histogram is a graph that displays brightness along the horizontal axis (black to white) and the number of pixels at each brightness level on the vertical axis. It allows you to easily check a picture's exposure. Ⓐ dark Ⓑ optimal Ⓒ bright 

- **When you take pictures with the flash or in dark places, the Histogram is displayed in orange because the recorded picture and the Histogram do not match each other.**
- The Histogram is an approximation in the Recording Mode.
- The Histogram of a picture may not match in the Recording Mode and the Playback Mode.
- The Histogram displayed in this camera does not match Histograms displayed by picture editing software used in PCs etc.
- Histograms are not displayed in the following cases:
  – Intelligent Auto Mode
  – Multi Playback
  – Playback Zoom
  – Calendar
  – [Dual Play]
  – [Photo Frame] in Scene Mode
  – When HDMI mini cable is connected
  – When recording motion pictures

[Rec Area]	Angle of view for motion picture recording can be checked.
	[ON]/[OFF]

- Motion picture recording frame display is only an approximation.
- Recording frame display may disappear when zooming to Tele depending on the picture size setting.
- It will be fixed to [OFF] during the Intelligent Auto Mode.

ECO **[Economy]**	You can conserve the battery life by setting these menus. Also, the battery life is conserved by dimming the LCD monitor.
	[Sleep Mode]: The camera is automatically turned off if the camera has not been used for the time selected on the setting. **[2MIN.]/[5MIN.]/[10MIN.]/[OFF]**
	[LCD Power Save]: Brightness of the LCD monitor is lowered. The battery life will be conserved by lowering the image quality of the LCD monitor further during the recording*. * Excluding the Digital Zoom range. **[ON]/[OFF]**

- Press the shutter button halfway or turn the camera off and on to cancel [Sleep Mode].
- [Sleep Mode] is set to [5MIN.] in the Intelligent Auto Mode.
- [Sleep Mode] does not work in the following cases.
  – When using the AC adaptor
  – When connecting to a PC or a printer
  – When recording or playing back motion pictures
  – During a slide show
  – [Auto Demo]
- The effect of the [LCD Power Save] is lower in the Digital Zoom range compared to the Optical Zoom range.
- The effect of the [LCD Power Save] will not affect the image being recorded.
- Setting of [LCD Mode] has priority over the setting of [LCD Power Save] regarding the brightness of the LCD monitor.

[Auto Review]	Set the length of time that the picture is displayed after taking it.
	[1SEC.] **[2SEC.]** **[HOLD]:** The pictures are displayed until [Exit] is touched. **[OFF]**

- [Auto Review] works regardless of its setting when using [Handheld Night Shot], [Hi-Speed Burst], [Flash Burst] modes in Scene Mode, and [Auto Bracket] and [Burst] in [Rec] Mode menu.
- In Intelligent Auto Mode or [Photo Frame] in Scene Mode, the Auto Review function is fixed to [2SEC.].
- [Auto Review] does not work when recording motion pictures.

[No.Reset]	Reset the file number of the next recording to 0001.

- The folder number is updated and the file number starts from 0001.
- A folder number between 100 and 999 can be assigned.
  When the folder number reaches 999, the number cannot be reset. We recommend formatting the card (P45) after saving the data on a PC or elsewhere.
- To reset the folder number to 100, format the built-in memory or the card first and then use this function to reset the file number.
  A reset screen for the folder number will then appear. Select [Yes] to reset the folder number.

[Reset]	The [Rec] or [Setup] menu settings are reset to the initial settings.

- When the [Reset] setting is selected during recording, the operation that resets the lens is also performed at the same time. You will hear the sound of the lens operating but this is normal and not indicative of malfunctioning.
- When the [Rec] Mode settings are reset, data registered with [Face Recog.] will be also reset, too.
- When [Setup] menu settings are reset, the following settings are also reset.
  – The birthday and name settings for [Baby1]/[Baby2] and [Pet] in Scene Mode
  – The settings of [Travel Date] (departure date, return date, location)
  – The [World Time] setting
- The folder number and the clock setting are not changed.

[USB Mode]	Select the USB communication system after or before connecting the camera to your PC or your printer with the USB connection cable (supplied).
	[Select on connection]: Select either [PC] or [PictBridge(PTP)] if you connected the camera to a PC or a printer supporting PictBridge. **[PictBridge(PTP)]:** Set after or before connecting to a printer supporting PictBridge. **[PC]:** Set after or before connecting to a PC.

	Set to match the color television system in each country or the type of TV. (Playback Mode only)
[Output]	**[TV Aspect]:** **[16:9]:** When connecting to a 16:9 screen TV. **[4:3]:** When connecting to a 4:3 screen TV. • This will work when the AV cable is connected.

[VIERA Link]	Setup so this unit can be controlled by the remote control of the VIERA by automatically coupling this unit with the VIERA Link compatible equipment using HDMI mini cable (optional).	
	[ON]:	Remote control operation of the VIERA Link compatible equipment is enabled. (Not all operations are possible) The operations you can perform on the camera are limited.
	[OFF]:	Operations will be on the camera only.

• This will work when the HDMI mini cable (optional) is connected.
• Refer to P120 for details.

[3D PLAYBACK]	Setup the output method for 3D pictures.	
	[3D]:	Set when connecting to a 3D compatible television.
	[2D]:	Set when connecting to a television not compatible with 3D. Set this when you would like to view pictures in 2D (conventional image) on a 3D compatible television.

• This will work when the HDMI mini cable (optional) is connected.
• Refer to P122 for the method to playback 3D pictures in 3D.

[Rotate Disp.]	This mode allows you to display pictures vertically if they were recorded holding the camera vertically. (Playback Mode only)	
	[ ]:	It will rotate and display vertically.
	[ ]:	It will display vertically only when playing back connected to a TV.
	[OFF]	

• Refer to P24 for information about how to play back pictures.
• When you play back pictures on a PC, they cannot be displayed in the rotated direction unless the OS or software is compatible with Exif. Exif is a file format for still pictures which allows recording information etc. to be added. It was established by “JEITA (Japan Electronics and Information Technology Industries Association)”.
• It may not be possible to rotate pictures that have been recorded with other equipment.
• The display is not rotated during Multi Playback.

[Version Disp.]	It is possible to check which version of firmware is on the camera.

[Format]	The built-in memory or card is formatted (Pictures in My Photo Album are also formatted). Formatting irretrievably deletes all the data so check the data carefully before formatting.

- Use a battery with sufficient battery power or the AC adaptor (optional) and DC coupler (optional) when formatting. Do not turn the camera off during formatting.
- If a card has been inserted, only the card is formatted. To format the built-in memory, remove the card.
- If the card has been formatted on a PC or other equipment, format it on the camera again.
- It may take longer to format the built-in memory than the card.
- If the built-in memory or the card cannot be formatted, consult your nearest Service Center.

For USA and Puerto Rico assistance, please call:
1-800-211-PANA(7262) or, contact us via the web at:
http://www.panasonic.com/contactinfo

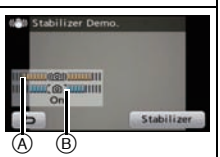
For Canadian assistance, please call:
1-800-99-LUMIX (1-800-995-8649) or
send e-mail to: lumixconcierge@ca.panasonic.com

[Calibration]	Adjust the position of the touch panel if a different thing gets selected from what you touched or touch operation does not respond.
	1 Touch [Start]. **2 Touch the orange [+] mark displayed on the screen in order with the stylus pen (supplied) (5 places).** • A message is displayed once the position is set. **3 Touch [End] to finish.** 

- Calibration is not done if correct position is not touched. Touch the [+] mark again.

[Language]	Set the language displayed on the screen.

- If you set a different language by mistake, select [] from the menu icons to set the desired language.

DEMO **[Demo Mode]**	Displays the amount of jitter the camera has detected. ([Stabilizer Demo.]) The camera's features are displayed as slide shows. ([Auto Demo])
	[Stabilizer Demo.] Ⓐ Amount of jitter Ⓑ Amount of jitter after correction  **[Auto Demo]:** **[ON]** **[OFF]**

- The Stabilizer function is switched between [ON] and [OFF] every time [Stabilizer] is touched during the [Stabilizer Demo.].
- In Playback Mode, [Stabilizer Demo.] cannot be displayed.
- [Stabilizer Demo.] is an approximation.
- [Auto Demo] has no TV output capability even when it is in Playback Mode.

About the LCD Monitor

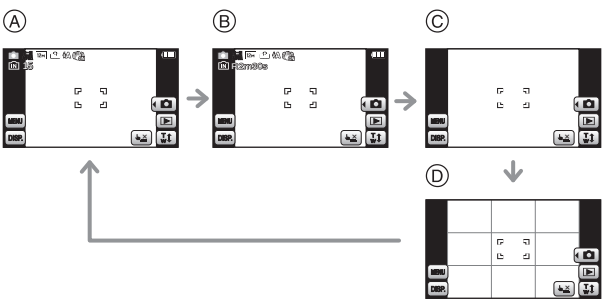
Touch [DISP.] to change.



• During Playback Zoom, while playing back motion pictures and during a slide show, you can only select “Normal display Ⓔ” or “No display Ⓖ”.

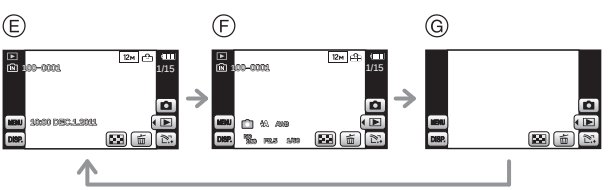
In Recording Mode

Ⓐ Normal display*1
Ⓑ Normal display*1
Ⓒ No display*2
Ⓓ No display (Recording guideline)*1, 2



In Playback Mode

Ⓔ Normal display
Ⓕ Display with recording information*1
Ⓖ No display*2, 3



*1 If the [Histogram] in [Setup] menu is set to [ON], histogram will be displayed.
*2 When operation ceases for a certain amount of time, only the icons shown below are displayed.
– In Recording Mode: [ ]/[ ]/[DISP.]
– In Playback Mode: [ ]/[DISP.]
*3 Name of the registered person in [Face Recog.] is displayed when [DISP.] is touched.

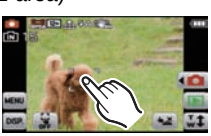
[Rec] Mode:

Taking Pictures with Focus and Exposure Set on Subject (Touch AF/AE)

It is possible to set the focus and exposure to the subject specified on the touch panel.
• Perform the operation after canceling the touch shutter function.

1 Touch the subject you wish to focus on.

- The AF area can be set freely at a position on the screen. (Cannot be set at the edge of the screen)
- Action will vary depending on the setting of [AF Mode] (P80).
- Touch AF/AE will be fixed to AF Tracking during Intelligent Auto Mode and the most appropriate scene will be determined for the touched subject.

[AF Mode]	Operations when touched
[ ]:Face Detection/ [ ]:23-area-focusing/ [ ]:1-area-focusing/ [ ]:Spot-focusing	• In [ ] (Face Detection), the AF area turns yellow when touched. • When it is set to anything other than [ ] (spot), AF area [ ] (1-area) is displayed. • When it is set to [ ] (spot), AF area [ ] (spot) is displayed. Example: When AF area is set to [ ] (1-area) 
[ ]:AF Tracking	• The AF area turns yellow and the subject is locked. The camera will continuously adjust the focus and exposure automatically, following the movement of the subject. (Dynamic Tracking)

- Touch [ ] to go back to the original Focus Mode.

2 Press the shutter button halfway to focus and then press it fully to take the picture.

■ Setting up [ ] (AF Tracking)

- When the AF lock fails, the Tracking AF frame will flash in red and then disappear. Redo the AF lock.
- AF Tracking will not operate when the subject is not specified, the subject is lost, or has failed to be tracked. The picture will be taken with [ ] in [AF Mode] in that case.
- AF Tracking is canceled when the Touch Shutter is set to [ ].
- It cannot be set to [ ] in the following conditions
  - In [Panorama Assist], [Starry Sky] and [Fireworks] in Scene Mode.
  - In [Monochrome], [High Dynamic], [Pin Hole] and [Film Grain] in My Color Mode
  - In [B/W], [SEPIA], [COOL], or [WARM] in [Color Mode].
- Failure of AF lock may occur depending on the recording conditions in the following cases.
  - When the subject is too small
  - When the recording location is too dark or bright
  - When the subject is moving too fast
  - When another subject or background is similar in color to the subject
  - When jitter is occurring
  - When using the zoom

Note

- Touch operation is not possible at the top right of the LCD monitor even if image is displayed.

[Rec] Mode: iA SCN

Taking Pictures with the Zoom

Using the Optical Zoom/Using the Extended Optical Zoom (EZ)/Using the Intelligent Zoom/Using the Digital Zoom

You can zoom-in to make people and objects appear closer or zoom-out to record landscapes in wide angle. To make subjects appear even closer (maximum of 9.8×), do not set the picture size to the highest setting for each aspect ratio (4:3/3:2/16:9/1:1).

To make subjects appear closer use (Tele)

Move the zoom lever to the Tele side.



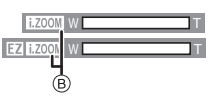
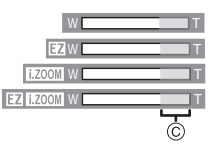
To make subjects appear further away use (Wide)

Move the zoom lever to the Wide side.



■ Types of zooms

Feature	Optical Zoom	Extended Optical Zoom (EZ)
Maximum magnification	5×	9.8×✳
Picture quality	No deterioration	No deterioration
Conditions	None	[Picture Size] with EZ (P75) is selected.
Screen display		 Ⓐ [EZ] is displayed.

Feature	Intelligent Zoom	Digital Zoom
Maximum magnification	Approximately 1.3 times the Optical Zoom or Extended Optical Zoom	Approximately 4 times the Optical Zoom, Extended Optical Zoom, or Intelligent Zoom
Picture quality	No noticeable deterioration	The higher the magnification level, the greater the deterioration.
Conditions	[i.Resolution] (P86) on the [Rec] menu is set to [i.ZOOM].	[Digital Zoom] (P86) on the [Rec] menu is set to [ON].
Screen display	 Ⓑ [i.ZOOM] is displayed.	 Ⓒ The Digital Zoom range is displayed.

- **When using the Zoom function, an estimate of the focus range will appear in conjunction with the zoom display bar. [Example: 0.5 m (1.64 ft.) –∞]**

✳ The magnification level differs depending on [Picture Size] and [Aspect Ratio] setting.

Note

- The indicated zoom magnification is an approximation.
- "EZ" is an abbreviation of "Extended Optical Zoom". It is possible to take more magnified pictures with the optical zoom.
- The lens barrel extends or retracts according to the zoom position. Take care not to interrupt the motion of the lens barrel while the zoom lever is rotated.
- When using the Digital Zoom, we recommend using a tripod and the self-timer (P74) for taking pictures.
- The Intelligent Zoom cannot be used in the following cases.
  - In [Motion Deblur] in Intelligent Auto Mode
  - In Macro Zoom Mode
  - In [Handheld Night Shot], [High Sens.], [Hi-Speed Burst] or [Flash Burst] in Scene Mode
  - In [Pin Hole] in My Color Mode
- The Extended Optical Zoom cannot be used in the following cases.
  - In [Motion Deblur] in Intelligent Auto Mode
  - In Macro Zoom Mode
  - In [Transform], [Handheld Night Shot], [High Sens.], [Hi-Speed Burst], [Flash Burst] or [Photo Frame] in Scene Mode
  - In [Pin Hole] in My Color Mode
  - When recording motion pictures
- [Digital Zoom] cannot be used in the following cases.
  - In Intelligent Auto Mode
  - In [Transform], [Handheld Night Shot], [High Sens.], [Hi-Speed Burst], [Flash Burst] or [Photo Frame] in Scene Mode
  - In [Pin Hole] or [Film Grain] in My Color Mode

Zooming with touch operation

1 Touch [T/W].

- Zoom icon is displayed on the LCD monitor.



2 Touch the zoom icon on the screen.



[T]	The zoom position automatically moves to Tele.
[W]	The zoom position automatically moves to Wide.
	• Touching the icon again during the move stops the move.
[L]	Slow zooming
[H]	Fast zooming

- Zoom speed may be slower than normal in recording motion pictures.

Shortcut setting

Shortcut setting allows you to quickly call up certain menu items.
Up to 2 frequently-used menu items can be registered per Recording/Playback Mode.

• Read P71 for the [Rec] Mode menu, P90 for the [Motion Picture] Mode menu, and P100 for the [Playback] Mode menu.

1 **Touch [MENU].**



2 **Touch [📷], [🎬] or [▶].**

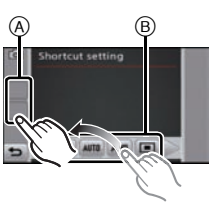


3 **Touch [MF].**



4 **Drag the menu item to register to the shortcut setting area.**

Ⓐ Shortcut setting area
Ⓑ Menu item
• The registered menu item is displayed.
• Exit the menu after it is set.



■ Replacing or removing items

• In Step **4**, drag the menu item you want to register to an item already registered. The items will be replaced.
• In Step **4**, drag registered items out of the shortcut setting area. Registration is canceled leaving an empty item.

Note

• The [Setup] menu cannot be set.
• You may not be able to use some of the registered items depending on the Recording Mode.

[Rec] Mode: SCN

Taking Pictures that Match the Scene Being Recorded (Scene Mode)

When you select a Scene Mode to match the subject and recording situation, the camera sets the optimal exposure and hue to obtain the desired picture.

1 **Touch [ ].**

2 **Touch [SCN].**

3 **Touch the scene mode to set.**

- The item can be switched by touching [◁]/[▷].



Note

- Scene Modes can be changed by touching [SCN] from the menu screen.
- The following items cannot be set in Scene Mode because the camera automatically adjusts them to the optimal setting.
  – [Sensitivity]/[i.Exposure]/[Min. Shtr Speed]/[i.Resolution]/[Color Mode]

[Portrait]

When taking pictures of people outdoors during the day, this mode allows you to improve the appearance of the persons concerned and make their skin tones look healthier.

■ Technique for Portrait Mode

To make this mode more effective:

❶ Press and hold down the zoom lever as far as possible to Tele.

❷ Move close to the subject to make this mode more effective.

[Transform]

Subject can be recorded either slim or stretched, and at the same time, skin can be recorded smoothly.

■ Setting the level of transform

Select the level of transform.

Note

- Do not use the material against the public order and morals, or to offend someone.

[Self Portrait]

Select this to take pictures of yourself.

■ **Technique for Self Portrait Mode**

- Press the shutter button halfway to focus. The self-timer indicator lights up when you are brought into focus. Making sure you hold the camera still, press the shutter button fully to take the picture.
- The subject is not focused when the self-timer indicator is blinking. Make sure to press the shutter button halfway again to focus.
- If the picture is blurry due to the slow shutter speed, we recommend using the 2 second self-timer.



[Scenery]

This allows you to take pictures of a wide landscape.

[Panorama Assist]

You can take pictures with connections suitable for creating panorama images.

■ **Setting the recording direction**

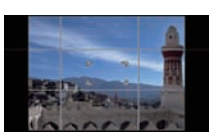
1 **Touch the direction to take picture.**

2 **Touch [OK].**

- The horizontal/vertical guideline will be displayed.

3 **Take the picture.**

- You can retake the picture by selecting [Retake].



4 **Touch [Next].**

- Part of the recorded image is displayed as a transparent image.

5 **Take picture after moving the camera horizontally or vertically so the transparent image overlaps.**

- When taking the third and later pictures, repeat steps **4** and **5**.



6 **Touch [Exit].**

Note

- The focus, zoom, exposure, White Balance, shutter speed and ISO sensitivity are fixed to the settings for the first picture.
- We recommend using a tripod. When it is dark, we recommend using the self-timer for taking pictures.
- Shutter speed may slow down up to 8 seconds.
- The shutter may remain closed (max. about 8 sec.) after taking the picture because of signal processing. This is not a malfunction.
- The recorded images can be combined into panorama pictures using the software “PHOTOfunSTUDIO” on the CD-ROM (supplied).

[Sports]

Set here when you want to take pictures of sports scenes or other fast-moving events.

Note
- Shutter speed may slow down up to 1 second.
- This mode is suitable for taking pictures of subjects at distances of 5 m (16.4 feet) or more.

[Night Portrait]

This allows you to take pictures of a person and the background with near real-life brightness.

■ Technique for Night Portrait Mode
- **Use the flash. (You can set to [ ].)**
- Ask the subject not to move while taking a picture.

Note
- We recommend using a tripod and the self-timer for taking pictures.
- Shutter speed may slow down up to 8 seconds.
- The shutter may remain closed (max. about 8 sec.) after taking the picture because of signal processing. This is not a malfunction.
- Noise may become visible when you take pictures in dark places.

[Night Scenery]

This allows you to take vivid pictures of the nightscape.

Note
- We recommend using a tripod and the self-timer for taking pictures.
- Shutter speed may slow down up to 8 seconds.
- The shutter may remain closed (max. about 8 sec.) after taking the picture because of signal processing. This is not a malfunction.
- Noise may become visible when you take pictures in dark places.

[Handheld Night Shot]

This mode allows you to record multiple pictures of night scenes at high speed, which are all combined to make a single picture. It will reduce the jitter and noise from the picture even when recording with the camera in your hand.

■ Picture size and aspect ratio

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

Note
- **Take pictures in sequence and combine them into one picture.**
- Do not move the camera while recording pictures continuously.
- Noise may become visible when you take pictures in dark places or take pictures of moving subjects.

[Food]

This mode allows you to take pictures of food with a natural hue without being affected by the ambient light in restaurants etc.

[Party]

Select this mode when you want to take pictures at a wedding reception or an indoor party etc. This allows you to take pictures of people and the background with near real-life brightness.

■ Technique for Party Mode

- **Use the flash. (You can set to [ ] or [ ].)**
- We recommend using a tripod and the self-timer for taking pictures.
- We recommend moving the zoom lever to Wide (1×) and being about 1.5 m (4.92 feet) from the subject when taking pictures.

[Candle Light]

This mode allows you to take pictures with a candle-lit atmosphere.

■ Technique for Candle Light Mode

- This is more effective when taking pictures without using the flash.

Note

- We recommend using a tripod and the self-timer for taking pictures.
- Shutter speed may slow down up to 1 second.

[Baby1]/[Baby2]

This takes pictures of a baby with a healthy complexion. When you use the flash, the light from it is weaker than usual.
It is possible to set different birthdays and names for [Baby1] and [Baby2]. You can select to have these appear at the time of playback, or have them stamped on the recorded image using [Text Stamp] (P102).

■ Birthday/Name setting

1 **Touch [Age] or [Name].**

2 **Touch [SET].**

3 **Enter the birthday or name.**

Birthday: Touch [▲]/[▼] for each item to set year/month/day, and touch [Set].

Name: For details on how to enter characters, refer to “Entering Text” on P93.

- When the birthday or name is set, [Age] or [Name] is automatically set to [ON].
- If [ON] is selected when the birthday or name has not been registered, the setting screen appears automatically.

4 **Touch [Exit] to finish.**

■ To cancel [Age] and [Name]

Select the [OFF] setting in step **2**.

Note

- The age and name can be printed out using the “PHOTOfunSTUDIO” bundled software on the CD-ROM (supplied).
- If [Age] or [Name] is set to [OFF] even when the birthday or name has been set, the age or name will not be displayed. Before taking pictures, set [Age] or [Name] to [ON].
- Shutter speed may slow down up to 1 second.

[Pet]

Select this mode when you want to take pictures of a pet such as a dog or a cat.
You can set your pet's birthday and name.

For information about [Age] or [Name], refer to [Baby1]/[Baby2] on P56.

[Sunset]

Select this mode when you want to take pictures of a sunset view. This allows you to take vivid pictures of the red color of the sun.

[High Sens.]

This mode minimizes the jitter of the subjects, and enables you to take pictures of these subjects in dimly lit rooms.

■ Picture size and aspect ratio

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

[Hi-Speed Burst]

This is a convenient mode for shooting rapid movement or a decisive moment.

■ Picture size and aspect ratio

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

- Still pictures are taken continuously while the shutter button is pressed fully.

Maximum Burst speed	approx. 10 pictures/second (Speed priority) approx. 6 pictures/second (Image priority)
Number of recordable pictures	approx. 15 to 100 pictures

- The Burst speed changes according to the recording conditions.
- The number of Burst recording pictures are limited by the picture-taking conditions and the type and/or status of the card used.
- The number of Burst recording pictures may increase when you use a card with fast writing speed or card is formatted.

Note

- The focus, zoom, exposure, White Balance, shutter speed and ISO sensitivity are fixed to the settings for the first picture.
- The ISO sensitivity is automatically adjusted. However, the ISO sensitivity is increased to make the shutter speed become high-speed.
- Depending on the operating conditions, it may take time to take the next picture if you repeat taking a picture.

[Flash Burst]

Still pictures are taken continuously with flash. It is convenient to take continuous still pictures in dark places.

■ Picture size and aspect ratio

Select the picture size of 3M (4:3), 2.5M (3:2), 2M (16:9) or 2.5M (1:1).

• Still pictures are taken continuously while the shutter button is pressed fully.

Number of recordable pictures	max. 5 pictures

Note

• The focus, zoom, exposure, shutter speed, ISO sensitivity, and flash level are fixed to the settings for the first picture.
• Number of recordable pictures will be fixed to 5 pictures when the self-timer is used.

[Starry Sky]

This allows you to take vivid pictures of a starry sky or a dark subject.

■ Setting the shutter speed

Select a shutter speed of [15 sec.], [30 sec.] or [60 sec.].

• Press the shutter button fully to display the countdown screen. Do not move the camera after this screen is displayed. When countdown finishes, [Please wait...] is displayed for the same length of time as the set shutter speed for signal processing.

■ Technique for Starry Sky Mode

• The shutter opens for 15, 30 or 60 seconds. Be sure to use a tripod. We also recommend taking pictures with the self-timer.

[Fireworks]

This mode allows you to take beautiful pictures of fireworks exploding in the night sky.

■ Technique for Fireworks Mode

• Since the shutter speed becomes slower, we recommend using a tripod.

Note

• This mode is most effective when the subject is 10 m (32.8 feet) or more away.
• The shutter speed is fixed to 1/4th of a second or 2 seconds.
• You can change the shutter speed by compensating the exposure.

[Beach]

This allows you to take even more vivid pictures of the blue color of the sea, sky etc. It also prevents underexposure of people under strong sunlight.

Note

- Do not touch the camera with wet hands.
- Problems caused by sand, seawater and fresh water are not covered by the product warranty.

[Snow]

This allows you to take pictures that show the snow as white as possible at a ski resort or a snow-covered mountain.

[Aerial Photo]

This mode allows you to take pictures through an airplane window.

■ Technique for Aerial Photo Mode

- We recommend using this technique if it is difficult to focus when taking pictures of clouds etc. Aim the camera at something with high contrast, press the shutter button halfway to fix the focus and then aim the camera at the subject and press the shutter button fully to take the picture.

[Photo Frame]

Record the image with a frame around it.

■ Setting the frame

Select from 3 types of frames.

Note

- The color of the frame displayed on the screen and the color of the frame around the actual image may differ, but this is not a malfunction.

[Rec] mode: 3D

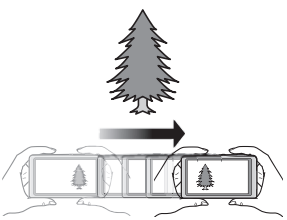
Taking 3D pictures (3D Photo Mode)

Pictures are recorded continuously while moving the camera horizontally, and two picutres selected automatically are combined to make a single 3D picture.
To view 3D pictures, a television that supports 3D is required (This unit will playback in 2D).
Refer to P122 for details about the playback method.

1 Touch [ ].

2 Touch [3D].

- Description of recording method is displayed. To exit, touch [OK].



3 Take a picture with the subject to the right of the screen.

4 Move the camera horizontally straight from left to right while recording.

- A guide is displayed while recording.
- Move the camera approximately 10 cm (0.33 feet) within approximately 4 seconds using the guide.

■ Technique for taking 3D pictures

– Take a picture of a subject that is not moving
– Take a picture in a well-lit place, such as outdoors, etc.
– Fix the focus and exposure by pressing the shutter button halfway, then press the shutter button fully and move the camera

Note

- **You cannot record 3D pictures in vertical orientation.**
- The 3D pictures are saved in MPO format (3D).
- Zoom position is fixed to Wide.
- The picture size is fixed to 2M (16:9).
- The ISO sensitivity is automatically adjusted. However, the ISO sensitivity is increased to make the shutter speed become high-speed.
- Motion pictures cannot be recorded during 3D Photo Mode.
- 3D effect may not be achieved or the recorded picture may be warped with the 3D recording depending on the recording environment, such as in the following:
  – When the subject is too dark/the brightness changes
  – When the subject is moving

[Rec] Mode:

Taking pictures while changing the skin texture (Cosmetic Mode)

Pictures can be taken while setting the texture or clearness of the skin.

1 **Touch [ ].**

2 **Touch [ ].**

3 **Select the item.**

- Touch [▲]/[▼] to set the clearness.



Item	Adjustment contents
[Soft Skin]	To take a picture with soft skin.
[Natural Skin]	To bring out the original beauty of the skin.
[Summer Look]	To create healthy tanned skin such as at the beach.

- 3 levels of clearness can be selected for each.

4 **Touch [OK].**

Note

- Effect is not applied if no skin tone is detected.
- Cosmetic Mode setting set is memorized even if the camera is turned off.
- The following items cannot be set because the camera automatically adjusts them to the optimal setting.
  – [Sensitivity]/[i.Exposure]/[Min. Shtr Speed]/[i.Resolution]/[Color Mode]

[Rec] mode:

Taking pictures while adjusting color
(My Color Mode)

You can take pictures with a desired effect by previewing the subject on the screen and setting the desired effect.

1 **Touch [ ].**

2 **Touch [ ].**

3 **Select the item.**

Item	Effect
[Expressive]	This is a pop art style image effect that emphasises the color.
[Retro]	This is a soft image effect that gives the appearance of a tarnished photograph.
[Pure]	This is an image effect that uses a cool, bright light to give a feeling of freshness. (The image will come out bright and slightly bluish.)
[Monochrome]	This is an image effect that captures the subject using tones characteristic of black and white photography, and with a whisper of color.
[High Dynamic]	This is an image effect that pictures dark and bright areas with appropriate brightness and with natural color.
[Silhouette]	This is an image effect that enhances the subject in the shade as a black silhouette by utilising the background colors of the sky or sunset etc.
[Pin Hole]	Picture is taken darker and with soft focus around the subjects.
[Film Grain]	Picture is taken with a grainy texture as though blasted with sand.

4 **Touch [OK].**

Note

- Settings can be changed by touching [ ] from the menu screen.
- My Color settings are memorized even if the camera is turned off.

[Rec] Mode:

Taking a Picture with Face Recognition Function

Face Recognition is a function which finds a face resembling a registered face and prioritises focus and exposure automatically. Even if the person is located towards the back or on the end of a line in a group photo, the camera can still take a clear picture.

[Face Recog.] is initially set to [OFF] on the camera.
[Face Recog.] will turn [ON] automatically when the face image is registered.



- **The following functions will also work with the Face Recognition function.**

In Recording Mode

– Display of corresponding name when camera detects a registered face* (if name has been set for the registered face)

In Playback Mode

– Display of name and age (if information has been registered)
– Selective playback of pictures chosen from pictures registered with Face Recognition ([Category Selection] (P98) in [Filtering Play]).

* Names of up to 3 people are displayed. Precedence for the names displayed when taking pictures is determined according to the order of registration.

Note

- During the Burst Mode, [Face Recog.] picture information can be attached to only the first picture.
- [Face Recog.] can be used in the following Scene Modes.
  – [Portrait]/[Self Portrait]/[Scenery]/[Sports]/[Night Portrait]/[Party]/[Candle Light]/[Baby1]/[Baby2]/[Pet]/[Sunset]/[High Sens.]/[Beach]/[Snow]/[Photo Frame]
- [Face Recog.] will find a face similar to the registered face, and does not guarantee secure recognition of a person.
- Face Recognition may take more time to select and recognize distinctive facial features than regular Face Detection.
- This function is fixed to [OFF] while motion pictures are taken.
- Even when Face Recognition information has been registered, pictures taken with [Name] set to [OFF] will not be categorized by Face Recognition in [Category Selection] ([Filtering Play]).
- **Even when Face Recognition information is changed (P66), Face Recognition information for the pictures already taken will not be changed.**
  For instance, if the name is changed, pictures recorded before the change will not be categorized by Face Recognition in [Category Selection] ([Filtering Play])
- To change the name information of the pictures taken, perform the [Replace] in [Face Rec Edit] (P111).

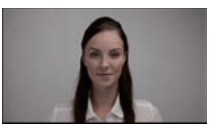
Face Settings

You can register information such as names and birthdays for face images of up to 6 people.
Registration can be facilitated by taking multiple face images of each person. (up to 3 pictures/registration)

■ Point of recording when registering the face images

- Face front with eyes open and mouth closed, making sure the outline of the face, the eyes, or the eyebrows are not covered with the hair when registering.
- Make sure there is no extreme shading on the face when registering. (Flash will not flash during registration.)

(Good example for registering)



■ When it is not recognising during recording

- Register the face of same person indoors and outdoors, or with different expressions or angles. (P66)
- Additionally register at the location of recording.
- When a person who is registered is not recognized, correct by re-registering.
- Face Recognition may not be possible or may not recognize faces correctly even for registered faces, depending on the facial expression and environment.

Registering face image of new person

1 Select [Face Recog.] on the [Rec] Mode menu. (P36)

2 Touch [ ] ([Memory]).

3 Touch [New].

- [New] will not display if there are 6 people already registered. Delete a person already registered to register a new person.

4 Take the picture adjusting the face with the guide.

- The faces of subjects other than people (pets, etc.) cannot be registered.
- An information for taking face images is displayed when [ ] is touched.
- Confirmation screen is displayed. It is executed when [Yes] is selected.

5 Set the item.

• You can register up to 3 face images.

Item	Description of settings
[Name]	It is possible to register names. **1 Select [SET].** **2 Enter the name.** • For details on how to enter characters, refer to “Entering Text” section on P93.
[Age]	It is possible to register the birthday. **1 Select [SET].** **2 Set the Year/Month/Day by touching [▲]/[▼] for each item, and touch [Set].**
[Focus Icon]	Change the displayed focus icon when the subject is focused. **Touch the focus icon.**
[Add Images]	To add additional face images. **(Add Images)** **1 Touch [Add].** **2 Perform step 4 in “Registering face image of new person”.**
	To delete one of the face images. **(Delete)** **Touch the face image to delete.** • If there is only one image registered, it cannot be deleted.

• Exit the menu after it is set.

Change or delete the information for a registered person

You can modify the pictures or information of an already registered person. You can also delete the information of the registered person.

1 Select [Face Recog.] from the [Rec] Mode menu. (P36)
2 Touch [ ] ([Memory]).
3 Touch the face image to edit or delete.
4 Set the item.

Item	Description of settings
[Info Edit]	Changing the information of an already registered person. **Perform step 5 in "Registering face image of new person".**
[Priority]	The focus and exposure are preferentially adjusted for higher-priority faces. **1 Touch the position you wish to change in the order of registration.** **2 Touch [Set].**
[Delete]	Deleting information of a registered person.

- Exit the menu after it is set.

[Rec] Mode: iA SCN

Taking a still picture while recording a motion picture

Still pictures can be recorded even while recording a motion picture.
During motion picture recording, press the shutter button fully to record a still picture.

Note

- During motion picture recording, if you press the shutter button halfway, or record still pictures with the touch shutter, the camera will refocus and the refocus movement will be recorded to the motion picture being recorded. To prioritise the motion picture image, recording still pictures by fully pressing the shutter button, or creating still pictures after motion picture recording is recommended. (P94)
- The touch shutter function will also work if you unintentionally touch the touch panel, so be careful.
- Recordable pixels and recordable number of pictures are displayed by pressing the shutter button halfway.
- Recording of motion picture will continue after taking the still picture.
- Simultaneously recorded still pictures will be recorded in an aspect ratio of [16:9], and picture size of [3.5M]. The picture quality may be different from [3.5M] of standard pictures.
- Up to 5 still pictures can be recorded during recording of the motion picture.
- **The flash setting is fixed to [⊗].**
- Zooming may stop when a picture is recorded while zooming.
- Simultaneous recording is not possible when [VGA] or [QVGA] is set in [Motion JPEG].
- Operation sound of the shutter button may be recorded when a picture is taken during motion picture recording.
- When the subject has a bright part, reddish stripes may appear on the LCD monitor. Alternatively, part or all of the LCD monitor may turn a reddish color.

[Rec] Mode:

Useful Functions at Travel Destinations

Recording which Day of the Vacation and the Location of the Vacation ([Travel Date])

For details on the [Setup] menu settings, refer to P36.

If you set the departure date or the travel destination of the vacation in advance, the number of days that have passed since the departure date (which day of the vacation it is) is recorded when you take the picture. You can display the number of days that have passed when playing back the pictures and stamp it on the recorded pictures with [Text Stamp] (P102).

- The number of days that have passed since the departure date can be printed out using the "PHOTOfunSTUDIO" bundled software on the CD-ROM (supplied).
- **Select [Clock Set] to set the current date and time in advance. (P16)**

1 Select [Travel Date] from the [Setup] menu.

2 Touch [Travel Setup].

3 Touch [SET].



4 Touch year/month/day, set the departure date using [▲]/[▼], and then touch [Set].



5 Touch year/month/day, set the return date using [▲]/[▼], and then touch [Set].

6 Touch [Location].

7 Touch [SET].

8 Enter the location.

- For details on how to enter characters, refer to "Entering Text" on P93.
- Exit the menu after it is set.

■ Canceling the travel date

The travel date is automatically canceled if the current date is after the return date. If you want to cancel the travel date before the end of the vacation, select [OFF] on the screen shown in step **3**. If the [Travel Setup] is set to [OFF], [Location] will be also set to [OFF]. To delete only the [Location] data, select [OFF] on the screen in step **7**.

Note

- The travel date is calculated using the date in the clock setting and the departure date you set. If you set [World Time] to the travel destination, the travel date is calculated using the date in the clock setting and the travel destination setting.
- The travel date setting is memorized even if the camera is turned off.
- If [Travel Date] is set to [OFF], the number of days that have passed since the departure date will not be recorded. Even if [Travel Date] is set to [SET] after taking the pictures, which day of the vacation you took them is not displayed.
- If you set a departure date and then take a picture on a date before this departure date, [-] (minus) is displayed in orange and the day of the vacation on which you took the picture is not recorded.
- If the travel date is displayed as [-] (minus) in white, there is a time difference that involves date change between the [Home] and [Destination]. (It will be recorded)
- [Travel Date] cannot be set for motion pictures recorded with [AVCHD].
- [Location] cannot be recorded when taking motion pictures.
- [Travel Date] cannot be set in the Intelligent Auto Mode. Setting of other Recording Mode will be reflected.

Recording Dates/Times at Overseas Travel Destinations ([World Time])

For details on the [Setup] menu settings, refer to P36.

You can display the local times at the travel destinations and record them on the pictures you take.

• Select [Clock Set] to set the current date and time in advance. (P16)

1 Select [World Time] from the [Setup] menu.

- When first using the camera after purchasing it, the message appears. Touch [Set], and set the home area on the screen in step **3**.

2 Touch [Home].

3 Select the region in which you live using [◁]/[▷], and then touch [Set].



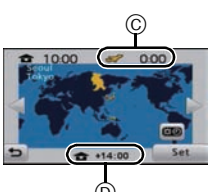
Ⓐ Current time
Ⓑ Time difference from GMT (Greenwich Mean Time)

- If daylight saving time [✲] is used at the home area, touch [✲]. (The time advances by one hour.) Touch [✲] again to return to the original time.

4 Touch [Destination].

- Depending on the setting, the time at the travel destination area or the home area is displayed.

5 Select the destination area of your trip using [◁]/[▷], and then touch [Set].



Ⓒ Current time of the destination area
Ⓓ Time difference

- If daylight saving time [✲] is used at the travel destination, touch [✲]. (The time advances by one hour.) Touch [✲] again to return to the original time.
- Exit the menu after it is set.

Note

- If you cannot find the travel destination in the areas displayed on the screen, set by the time difference from the home area.
- The travel destination icon [✈] appears when playing back pictures taken at the travel destination.

Using the [Rec] Mode Menu

[Flash]

For details on [Rec] Mode menu settings, refer to P36.
Set the flash to match the recording.

Applicable modes: iA, SCN

ϟA: AUTO	The flash is automatically activated when the recording conditions make it necessary.
ϟA◎: AUTO/Red-Eye Reduction*	The flash is automatically activated when the recording conditions make it necessary. It is activated once before the actual recording to reduce the red-eye phenomenon (eyes of the subject appearing red in the picture) and then activated again for the actual recording. • **Use this when you take pictures of people in low lighting conditions.**
ϟ: Forced Flash ON **ϟ◎: Forced ON/Red-Eye Reduction***	The flash is activated every time regardless of the recording conditions. • **Use this when your subject is back-lit or under fluorescent light.**
ϟS◎: Slow sync./Red-Eye Reduction*	If you take a picture with a dark background landscape, this feature will slow the shutter speed when the flash is activated so that the dark background landscape will become bright. Simultaneously it reduces the red-eye phenomenon. • **Use this when you take pictures of people in front of a dark background.**
ⓝ: Forced Flash OFF	The flash is not activated in any recording conditions. • **Use this when you take pictures in places where the use of the flash is not permitted.**

* **The flash is activated twice. The subject should not move until the second flash is activated. Interval until the second flash depends on the brightness of the subject.**

■ Available Flash Settings by Recording Mode

The available flash settings depend on the Recording Mode.
(○: Available, —: Not available, ●: Scene Mode initial setting)

	ϟA	ϟA◎	ϟ	ϟ◎	ϟS◎	ϟ⊛
iA	○*1	—	—	—	—	○
	○	○	○	—	○	○
	○	●	○	—	—	○
	○	●	○	—	—	○
	○	●	○	—	—	○
	—	—	—	—	—	●
	—	—	—	—	—	●
	●	—	○	—	—	○
	—	—	—	—	●	○
	—	—	—	—	—	●
	—	—	—	—	—	●
	○	—	○	—	—	●
	—	—	—	○	●	○
	—	—	—	○	○	●
	○	●	○	—	—	○
	○	●	○	—	—	○

	ϟA	ϟA◎	ϟ	ϟ◎	ϟS◎	ϟ⊛
	○	—	○	—	—	●
	—	—	—	—	—	●
	○	—	○	—	—	●
	—	—	—	—	—	●
	—	—	●	—	—	—
	—	—	—	—	—	●
	—	—	—	—	—	●
	—	—	●	—	—	○
	●	—	○	—	—	○
	—	—	—	—	—	●
	●	○	○	—	—	○
3D	—	—	—	—	—	○
	○	○	○	—	—	○
*2	—	—	—	—	—	○
*3	—	—	—	—	○	○
*4	○	—	○	—	—	○

*1 [iϟA] is displayed.
*2 [Expressive]/[Retro]/[Pure]/[Monochrome]/[Silhouette]
*3 [High Dynamic]
*4 [Pin Hole]/[Film Grain]

- The flash setting may change if the Recording Mode is changed. Set the flash setting again if necessary.
- The flash setting is memorized even if the camera is turned off. However, the Scene Mode flash setting is reset to the initial setting when the Scene Mode is changed.
- Flash will not be activated when recording motion picture.

■ The available flash range

• The available flash range is an approximation.

	Wide	Tele
[AUTO] in [Sensitivity]	60 cm (1.97 feet) to 5.9 m (19.4 feet)	1.0 m (3.28 feet) to 2.5 m (8.20 feet)

■ Shutter speed for each flash setting

Flash setting	Shutter speed (Sec.)
ϟA	1/60∗1 to 1/4000
ϟA👁	
ϟ / ϟ👁	

Flash setting	Shutter speed (Sec.)
ϟS👁	1∗1 to 1/4000 1 or 1/8 to 1/4000∗2 1 or 1/4 to 1/4000∗2, 3
⊛	

∗1 It may vary depending on the [Min. Shtr Speed] setting.
∗2 When [Min. Shtr Speed] is set to [AUTO].
∗3 When [Sensitivity] is set to [ISO].
• ∗2: The shutter speed becomes a maximum of 1 second in the following cases.
– When the Optical Image Stabilizer is set to [OFF].
– When the camera has determined that there is very little jitter when the Optical Image Stabilizer is set to [ON].
• In Intelligent Auto Mode, shutter speed changes depending on the identified scene.
• In Scene Mode, shutter speed will be different from the above table.

Note

• If you bring the flash too close to an object, the object may be distorted or discolored by the heat or lighting from the flash.
• When you take a picture beyond the available flash range, the exposure may not be adjusted properly and the picture may become too bright or too dark.
• When the flash is being charged, the flash icon blinks red, and you cannot take a picture even when you press the shutter button fully.
• When you take a picture beyond the available flash range, the White Balance may not be properly adjusted.
• The flash effect may not be sufficient when using [Flash Burst] in Scene Mode or when shutter speed is fast.
• It may take time to charge the flash if you are taking pictures in quick succession. Take a picture after the access indication disappears.
• The Red-Eye Reduction effect differs between people. Also, if the subject is far away from the camera or was not looking at the first flash, the effect may not be evident.

[Selftimer]

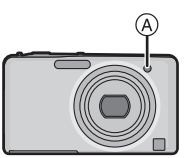
For details on [Rec] Mode menu settings, refer to P36.
This is for recording still pictures using the timer.

Applicable modes: iA SCN

[$\overset{10}{\circlearrowleft}$] (10 seconds)	Pictures are taken in 10 seconds. • Self-timer cannot be set to 10 seconds in [Self Portrait] in Scene Mode.
[$\overset{2}{\circlearrowleft}$] (2 seconds)	Pictures are taken in 2 seconds. • When using a tripod etc., this setting is a convenient way to avoid the jitter caused by pressing the shutter button.
[OFF]	–

• Press the shutter button halfway to focus and then press it fully to take the picture. The self-timer indicator blinks and the shutter is activated after 10 seconds (or 2 seconds).





Note
• When you press the shutter button once fully, the subject is automatically focused just before recording. In dark places, the self-timer indicator Ⓐ will blink and then may turn on brightly operating as an AF Assist Lamp to allow the camera to focus on the subject.
• We recommend using a tripod when recording with the self-timer.
• Setting of the self-timer cannot be performed in following conditions.
– In [Hi-Speed Burst] in Scene Mode
– When recording motion pictures

[Aspect Ratio]

For details on [Rec] Mode menu settings, refer to P36.
This allows you to select the aspect ratio of the pictures to suit printing or the playback method.

Applicable modes: SCN

[4:3]	[Aspect Ratio] of a 4:3 TV
[3:2]	[Aspect Ratio] of a 35 mm film camera
[16:9]	[Aspect Ratio] of a high-definition TV, etc.
[1:1]	Square aspect ratio

Note
• The ends of the recorded pictures may be cut at printing so check before printing. (P153)

[Picture Size]

For details on [Rec] Mode menu settings, refer to P36.
Set the number of pixels. The higher the numbers of pixels, the finer the detail of the pictures will appear even when they are printed onto large sheets.

Applicable modes: iA P SCN

When the aspect ratio is [4:3].
∗ This item cannot be set in the Intelligent Auto Mode.

12M **(12M)**	4000×3000 pixels
8M **(8M EZ)**∗	3264×2448 pixels
5M **(5M EZ)**	2560×1920 pixels
3M **(3M EZ)**∗	2048×1536 pixels
2M **(2M EZ)**∗	1600×1200 pixels
0.3M **(0.3M EZ)**	640×480 pixels

When the aspect ratio is [3:2].

10.5M **(10.5M)**	4000×2672 pixels
7M **(7M EZ)**∗	3264×2176 pixels
4.5M **(4.5M EZ)**∗	2560×1712 pixels
2.5M **(2.5M EZ)**∗	2048×1360 pixels
0.3M **(0.3M EZ)**∗	640×424 pixels

When the aspect ratio is [16:9].

9M **(9M)**	4000×2248 pixels
6M **(6M EZ)**∗	3264×1840 pixels
3.5M **(3.5M EZ)**∗	2560×1440 pixels
2M **(2M EZ)**∗	1920×1080 pixels
0.2M **(0.2M EZ)**∗	640×360 pixels

When the aspect ratio is [1:1].

9M **(9M)**	2992×2992 pixels
6M **(6M EZ)**∗	2448×2448 pixels
3.5M **(3.5M EZ)**∗	1920×1920 pixels
2.5M **(2.5M EZ)**∗	1536×1536 pixels
0.2M **(0.2M EZ)**∗	480×480 pixels

Note

- A digital picture is made of numerous dots called pixels. The higher the numbers of pixels, the finer the picture will be when it is printed on a large piece of paper or displayed on a PC monitor.
- If you change the aspect ratio, set the picture size again.
- The Extended Optical Zoom does not work in the following cases so the picture size for [EZ] is not displayed.
  - In [Motion Deblur] in Intelligent Auto Mode
  - In Macro Zoom Mode
  - In [Transform], [Handheld Night Shot], [High Sens.], [Hi-Speed Burst], [Flash Burst] or [Photo Frame] in Scene Mode
  - In 3D Photo Mode
  - In [Pin Hole] in My Color Mode
  - When recording motion pictures
- Pictures may appear in mosaic depending on the subject and the recording conditions.
- The setting is fixed to 3M (4:3), 2.5M (3:2), 2M (16:9), 2.5M (1:1) in [Transform] in Scene Mode.
- The setting is fixed to 2M (4:3) in [Photo Frame] in Scene Mode.

[Quality]

For details on [Rec] Mode menu settings, refer to P36.

Set the compression rate at which the pictures are to be stored.

Applicable modes: 

[▪▪▪]	Fine (when giving priority to the picture quality)
[▪▪▪]	Standard (when using the standard picture quality and increasing the number of pictures to be recorded without changing the number of pixels)

Note

- The setting is fixed to [▪▪▪] in [Transform], [Handheld Night Shot], [High Sens.], [Hi-Speed Burst] or [Flash Burst] in Scene Mode.
- The following icons are displayed during the 3D recording.

[3D ▪▪▪]: MPO+Fine (Both MPO images and fine JPEG images are recorded simultaneously.)

[3D ▪▪▪]: MPO+Standard (Both MPO images and standard JPEG images are recorded simultaneously.)

[Sensitivity]

For details on [Rec] Mode menu settings, refer to P36.

This allows the sensitivity to light (ISO sensitivity) to be set. Setting to a higher number enables pictures to be taken even in dark places without the resulting pictures coming out dark.

Applicable modes:

[AUTO]/[iISO]/[ISO100]/[ISO200]/[ISO400]/[ISO800]/[ISO1600]

	[ISO100] ⟷ [ISO1600]	
Recording location (recommended)	When it is light (outdoors)	When it is dark
Shutter speed	Slow	Fast
Noise	Less	Increased
Jitter of the subject	Increased	Less

ISO sensitivity	Settings
AUTO maximum [ISO400] (With the flash on [ISO1600])	The ISO sensitivity is automatically adjusted according to the brightness.
iISO maximum [ISO1600] (Intelligent)	The ISO sensitivity is adjusted according to the movement of the subject and the brightness.
100/200/400/800/1600	The ISO sensitivity is fixed to various settings.

■ About [iISO] (Intelligent ISO sensitivity control)

The camera detects movement of the subject and then automatically sets the optimum ISO sensitivity and shutter speed to suit the movement of the subject and brightness of the scene to minimize the jitter of the subject.

- The shutter speed is not fixed when the shutter button is pressed halfway. It is continuously changing to match the movement of the subject until the shutter button is pressed fully.

Note

- For the focus range of flash when [AUTO] is set, refer to P73.
- The setting is fixed to [iISO] in the following cases.
  – In [Sports], [Baby1]/[Baby2], [Pet] and [Flash Burst] in Scene Mode
- The setting is fixed to [AUTO] when recording motion pictures.

[White Balance]

For details on [Rec] Mode menu settings, refer to P36.
In sunlight, under incandescent lights or in other such conditions where the color of white takes on a reddish or bluish tinge, this item adjusts to the color of white which is closest to what is seen by the eye in accordance with the light source.

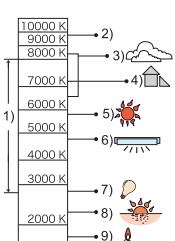
Applicable modes:

[AWB]	Automatic adjustment
[☼]	When taking pictures outdoors under a clear sky
[☁]	When taking pictures outdoors under a cloudy sky
[⌂]	When taking pictures outdoors in the shade
[☼]	When taking pictures under incandescent lights
[▬]	Value set by using [▬ SET]

Note
- The optimal White Balance will differ depending on the type of fluorescent lamp being recorded under so use [AWB] or [▬ SET].
- The White Balance setting is memorized even if the camera is turned off. (However, the White Balance setting for a Scene Mode returns to [AWB] when the Scene Mode is changed.)
- White Balance is fixed to [AWB] in following conditions.
  – [Scenery], [Night Portrait], [Night Scenery], [Handheld Night Shot], [Food], [Party], [Candle Light], [Sunset], [Flash Burst], [Starry Sky], [Fireworks], [Beach], [Snow] or [Aerial Photo] in Scene Mode
  – [Expressive], [Retro], [Pure], [Monochrome], [Silhouette] or [Film Grain] in My Color Mode

■ Auto White Balance
Depending on the conditions prevailing when pictures are taken, the pictures may take on a reddish or bluish tinge. Furthermore, when a multiple number of light sources are being used or there is nothing with a color close to white, Auto White Balance may not function properly. In this case, set the White Balance to a mode other than [AWB].

1 Auto White Balance will work within this range
2 Blue sky
3 Cloudy sky (Rain)
4 Shade
5 Sunlight
6 White fluorescent light
7 Incandescent light bulb
8 Sunrise and sunset
9 Candlelight
K=Kelvin Color Temperature



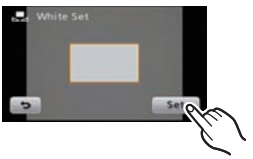
Setting the White Balance manually

Set the White Balance value. Use to match the condition when taking photographs.

1 Touch [ ].

2 Touch [SET].

3 Aim the camera at a sheet of white paper etc., so that the frame in the center is filled by the white object only and then touch [Set].



- If the subject is overly bright or overly dark, you may not be able to set the White Balance. If this is the case, adjust to an appropriate brightness and then set the White Balance again.
- Exit the menu after it is set.

Finely adjusting the White Balance

You can finely adjust the White Balance when you cannot acquire the desired hue by setting the White Balance.

1 Touch [ ]/[ ]/[ ]/[ ]/[ ] from the White Balance.

2 Touch [WB].

3 Drag the slide bar to make fine adjustments.

[Red]: Touch when the hue is bluish.

[Blue]: Touch when the hue is reddish.

- Select [0] to return to the original White Balance.

4 Touch [Set].

5 Touch [OK].

- Exit the menu after it is set.

Note

- The White Balance icon on the screen turns red or blue.
- You can finely adjust the White Balance independently for each White Balance item.
- The White Balance fine adjustment setting is reflected in the picture when using the flash.
- The White Balance fine adjustment setting is memorized even if the camera is turned off.
- The White Balance fine adjustment level in [ ] returns to [0] when you reset the White Balance using [SET].
- White Balance fine adjustment cannot be set for [B/W], [SEPIA], [COOL] and [WARM] in [Color Mode].

[AF Mode]

For details on [Rec] Mode menu settings, refer to P36.
This allows the focusing method that suits the positions and number of the subjects to be selected.

Applicable modes:

[]: Face Detection	The camera automatically detects the person's face. The focus and exposure can then be adjusted to fit the face no matter what portion of the picture it is in. (max. 15 areas)
[]: AF Tracking	Focus can be adjusted to a specified subject. Focus will keep on following the subject even if it moves. (Dynamic tracking) • Refer to P48 for details.
[]: 23-area-focusing*	Up to 23 points for each AF area can be focused. This is effective when the subject is not in the center of the screen. (AF area frame will be same as image aspect ratio setting.)
[]: 1-area-focusing	The camera focuses on the subject in the AF area on the center of the screen.
[]: Spot-focusing*	The camera focuses on a limited narrow area in the screen.

* [] will be used during motion picture recording.

Note
- It will be fixed to [] when the [Face Recog.] is set to [ON].
- The AF Mode is fixed to [] in [Starry Sky], [Fireworks] in Scene Mode.
- It is not possible to set [] in the following cases.
  – In [Panorama Assist], [Night Scenery], [Handheld Night Shot], [Food], and [Aerial Photo] in Scene Mode.

■ About [] (Face Detection)



The following AF area frames are displayed when the camera detects the faces.
Yellow:
When the shutter button is pressed halfway, the frame turns green when the camera is focused.
White:
Displayed when more than one face is detected. Other faces that are the same distance away as faces within the yellow AF areas are also focused.
- Under certain picture-taking conditions including the following cases, the facial recognition function may fail to work, making it impossible to detect faces. [AF Mode] is switched to [] ([] while motion pictures are taken).
  – When the face is not facing the camera
  – When the face is at an angle
  – When the face is extremely bright or dark
  – When there is little contrast on the faces
  – When the facial features are hidden behind sunglasses, etc.
  – When the face appears small on the screen
  – When there is rapid movement
  – When the subject is other than a human being
  – When the camera is shaking
  – When Digital Zoom is used

[Macro Mode]

For details on [Rec] Mode menu settings, refer to P36.
This mode allows you to take close-up pictures of a subject, e.g. when taking pictures of flowers.

Applicable modes:

[AF] ([AF Macro])	You can take pictures of a subject as close as 3 cm (0.10 feet) from the lens by pressing the zoom lever upmost to Wide (1×).
[ ] ([Macro Zoom])	You can take a picture with the Digital Zoom up to 3× while maintaining the distance to the subject for the extreme Wide position [3 cm (0.10 feet)]. • The image quality is poorer than during normal recording. • Zoom range will be displayed in blue. (Digital Zoom range)
[OFF]	–

Note
- We recommend using a tripod and the self-timer.
- We recommend setting the flash to [ ] when you take pictures at close range.
- If the distance between the camera and the subject is beyond the focus range of the camera, the picture may not be properly focused even if the focus indication lights.
- When a subject is close to the camera, the effective focus range is significantly narrowed. Therefore, if the distance between the camera and the subject is changed after focusing on the subject, it may become difficult to focus on it again.
- Macro Mode gives priority to a subject close to the camera. Therefore, if the distance between the camera and the subject is far, it takes longer to focus on it.
- When you take pictures at close range, the resolution of the periphery of the picture may decrease slightly. This is not a malfunction.
- Macro Zoom Mode cannot be used in the following cases.
  – In 3D Photo Mode
  – When [ ] is set in [AF Mode]

[Quick AF]

For details on [Rec] Mode menu settings, refer to P36.

As long as the camera is held steady, the camera will automatically adjust the focus and focus adjustment will then be quicker when the shutter is pressed. This is useful when you do not want to miss a picture-taking opportunity.

Applicable modes:

[ON]/[OFF]

Note

- The battery will be consumed faster than usual.
- Press the shutter button halfway again when it is difficult to focus on the subject.
- It does not operate during AF tracking.
- [Quick AF] cannot be set when in [Night Portrait], [Night Scenery], [Handheld Night Shot], [Starry Sky] and [Fireworks] in Scene Mode.

[Face Recog.]

Note

- Refer to P63 for details.

[Exposure]

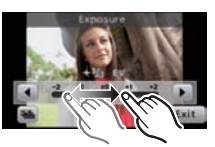
For details on [Rec] Mode menu settings, refer to P36.
Use this function when you cannot achieve appropriate exposure due to the difference in brightness between the subject and the background. Look at the following examples.

Applicable modes:

Underexposed	Properly exposed	Overexposed
		
Compensate the exposure towards positive.		Compensate the exposure towards negative.

1 **Adjust the exposure by dragging the slide bar.**
- Select [0 EV] to return to the original exposure.

2 **Touch [Exit].**
- Exit the menu after it is set.
- The exposure compensation value appears on the screen.



Note
- EV is an abbreviation of [Exposure Value], a unit indicating the amount of exposure. The EV changes with the aperture value or the shutter speed.
- The set exposure value is memorized even if the camera is turned off.
- The compensation range of the exposure will be limited depending on the brightness of the subject.
- Exposure compensation cannot be used in the following cases.
  – In [Starry Sky] in Scene Mode
  – In [Expressive], [Retro], [Pure], [Monochrome] or [Silhouette] in My Color Mode

[Auto Bracket]

In this mode, 3 pictures are automatically recorded in the selected exposure compensation range each time the shutter button is pressed. You can select the picture with the desired exposure from the 3 pictures with different exposures.

Applicable modes:

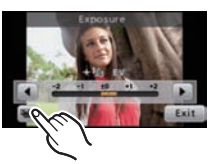
With Auto Bracket ±1 EV

1st picture	2nd picture	3rd picture
		
±0 EV	−1 EV	+1 EV

1 **Touch [ ] during exposure compensation.**

2 **Adjust the compensation range of the exposure by touching [ ]/[ ].**
- When you do not use Auto Bracket, select [OFF] (0).

3 **Touch [Exit].**
- Exit the menu after it is set.



Note
- When taking pictures using Auto Bracket after setting the exposure compensation range, the pictures taken are based on the selected exposure compensation range. Exposure value is displayed in the touch icon on the screen when the exposure is compensated.
- The exposure may not be compensated with Auto Bracket depending on the brightness of the subject.
- **[ ] is set for the flash when Auto Bracket is set.**
- Setting of the Auto Bracket cannot be performed in following conditions.
  – In [Transform], [Panorama Assist], [Handheld Night Shot], [Hi-Speed Burst], [Flash Burst], [Starry Sky] and [Photo Frame] in Scene Mode
  – In [Expressive], [Retro], [Pure], [Monochrome], [Silhouette], [Pin Hole] and [Film Grain] in My Color Mode
  – When recording motion pictures

[i.Exposure]

For details on [Rec] Mode menu settings, refer to P36.
Contrast and exposure will be adjusted automatically when there is a big difference in brightness between the background and subject, to bring the image close to real life.

Applicable modes:

[ON]/[OFF]

Note
- Even when the [Sensitivity] is set to [ISO100], [Sensitivity] may be set higher than [ISO100] if the picture is taken with [i.Exposure] set to valid.
- Compensation effect may not be achieved depending on the conditions.
- [i◑] in the screen turns to yellow when [i.Exposure] is in effect.

[Min. Shtr Speed]

For details on [Rec] Mode menu settings, refer to P36.
You can take bright pictures in dark places by setting [Min. Shtr Speed] slower. Also, you can set it faster to reduce the blur of the subject.

Applicable modes:

[AUTO], [1/125], [1/60], [1/30], [1/15], [1/8], [1/4], [1/2], [1]

Minimum shutter speed setting	1/125 ⟷ 1	
Brightness	Darker	Brighter
Jitter	Less	More

Note
- This should usually be set to [AUTO] to take pictures. (When you select a minimum shutter speed other than [AUTO], [MIN] appears on the screen.)
- When [AUTO] is selected, shutter speed may be set up to 1 second when there is not much jitter to adjust with the [Stabilizer], or when [Stabilizer] is set to [OFF].
- Setting [Min. Shtr Speed] to slower speed might increase the chance of jitter, so we recommend using a tripod and the self-timer for taking pictures.
- Setting [Min. Shtr Speed] to faster speed might make the picture darker, so we recommend recording the picture in a well-lit area. If correct exposure cannot be achieved, [MIN] will flash in red when the shutter button is pressed halfway.

[i.Resolution]

For details on [Rec] Mode menu settings, refer to P36.
Pictures with sharp profile and resolution can be taken by utilising the Intelligent Resolution Technology.

Applicable modes:

[ON]	[i.Resolution] is activated.
[i.ZOOM]	[i.Resolution] is activated, and the zoom magnification is increased by approximately 1.3× without noticeable deterioration in the picture.
[OFF]	—

Note
• Refer to P49 for information about the Intelligent Zoom.

[Digital Zoom]

For details on [Rec] Mode menu settings, refer to P36.
This can enlarge subjects even more than the Optical Zoom, Extended Optical Zoom or [i.ZOOM].

Applicable modes:

[ON]/[OFF]

Note
• Refer to P49 for details.
• The setting is fixed to [ON] in Macro Zoom Mode.

[Burst]

For details on [Rec] Mode menu settings, refer to P36.
Pictures are taken continuously while the shutter button is pressed.
Select the ones you really like from the pictures you have taken.

Applicable modes: iA SCN

[ON]/[OFF]

Burst speed (pictures/second)	approx. 3.7
Number of recordable pictures	max. 7 pictures

Note
- Focus, exposure, and White Balance will be fixed to the settings for the first picture. Depending on changes in the brightness of the subject, the recording may be brighter or darker from the second picture.
- When the Self-timer is used, the number of recordable pictures in Burst Mode is fixed to 3.
- The burst speed (pictures/second) may become slower depending on the recording environment such as in dark places, if the ISO sensitivity is high etc.
- Burst Mode is not canceled when the camera is switched off.
- If you take pictures in Burst Mode with the built-in memory, it will take time to write the picture data.
- **[⊘] is set for the flash when burst is set.**
- You cannot use Burst Mode in following conditions.
  – In [Panorama Assist], [Handheld Night Shot], [Hi-Speed Burst], [Flash Burst], [Starry Sky], [Fireworks] and [Photo Frame] in Scene Mode
  – In [Pin Hole] in My Color Mode
  – When recording motion pictures

[Color Mode]

For details on [Rec] Mode menu settings, refer to P36.
Using these modes, the pictures can be made sharper or softer, the colors of the pictures can be turned into sepia colors or other color effects can be achieved.

Applicable modes: iA

[STD] ([STANDARD])	This is the standard setting.
[Happy] ([Happy])∗1	Image with enhanced brightness and vividness.
[NAT] ([NATURAL])∗2	The picture becomes softer.
[VIVID] ([VIVID])∗2	The picture becomes sharper.
[BW] ([B/W])	The picture becomes black and white.
[SEPIA] ([SEPIA])	The picture becomes sepia.
[COOL] ([COOL])∗2	The picture becomes bluish.
[WARM] ([WARM])∗2	The picture becomes reddish.

∗1 This can be set only when Intelligent Auto Mode is set.
∗2 This can be set only during Normal Picture Mode.

[AF Assist Lamp]

For details on [Rec] Mode menu settings, refer to P36.

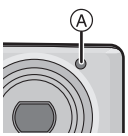
AF assist lamp will illuminate the subject when the shutter button is pressed half-way making it easier for the camera to focus when recording in low light conditions. (Larger AF area is displayed depending on the recording conditions.)

Applicable modes:

[ON]/[OFF]

Note

- The effective range of the AF Assist Lamp is 1.5 m (4.92 feet).
- When you do not want to use the AF Assist Lamp Ⓐ (e.g. when taking pictures of animals in dark places), set the [AF Assist Lamp] to [OFF]. In this case, it will become more difficult to focus on the subject.
- [AF Assist Lamp] is fixed to [OFF] in [Self Portrait], [Scenery], [Night Scenery], [Handheld Night Shot], [Sunset], [Fireworks] and [Aerial Photo] in Scene Mode.



[Red-Eye Removal]

For details on [Rec] Mode menu settings, refer to P36.

When Red-Eye Reduction ([ ], [ ], [ ]) is selected, Digital Red-Eye Correction is performed whenever the flash is used. The camera automatically detects red-eye and corrects the picture.

Applicable modes:

[ON]/[OFF]

Note

- Only available when [AF Mode] is set to [ ] and Face Detection is active.
- Under certain circumstances, red-eye cannot be corrected.
- [ ] is displayed on the icon when it is set to [ON].

[Stabilizer]

For details on [Rec] Mode menu settings, refer to P36.
Using this mode, jitter during picture taking is detected, and the camera automatically compensates for the jitter, enabling jitter-free images to be taken.

Applicable modes:

[ON]/[OFF]

Note
- The stabilizer function may not be effective in the following cases.
  – When there is a lot of jitter.
  – When the zoom magnification is high.
  – In Digital Zoom range.
  – When taking pictures while following a moving subject.
  – When the shutter speed becomes slower to take pictures indoors or in dark places.
  Be careful of camera jitter when you press the shutter button.
- The setting is fixed to [ON] in [Self Portrait] or [Handheld Night Shot] in Scene Mode or in recording motion pictures.
- The setting is fixed to [OFF] in [Starry Sky] in Scene Mode.

[Date Stamp]

For details on [Rec] Mode menu settings, refer to P36.
You can take a picture with date and time of recording.

Applicable modes:

[DATE] ([W/O TIME])	Stamp the year, month, and day.
[TIME] ([WITH TIME])	Stamp the year, month, day, hour, and minutes.
[OFF]	—

Note
- **Date information for pictures recorded with the [Date Stamp] set cannot be deleted.**
- **When printing pictures with [Date Stamp] at a shop or with a printer, the date will be printed on top of the other if you choose to print with the date.**
- Date information cannot be stamped into the pictures recorded without setting the clock.
- The setting is fixed to [OFF] in the following cases.
  – In [Panorama Assist], [Hi-Speed Burst] and [Flash Burst] in Scene Mode
  – [Auto Bracket] and [Burst] in [Rec] Mode menu
  – When recording motion pictures
- [Text Stamp], [Resize] and [Cropping] cannot be set for pictures recorded with [Date Stamp] set.
- Even if you take a picture with [Date Stamp] set to [OFF], it is possible to stamp dates into the recorded pictures using [Text Stamp] (P102) or setup the Date print (P108, 133).

[Clock Set]

For details on [Rec] Mode menu settings, refer to P36.

Note
- Refer to P16 for details.

Using the [Motion Picture] Mode Menu

[Rec Mode]

For details on [Motion Picture] Mode menu settings, refer to P36.
This sets up the data format of motion pictures.

Applicable modes: iA P SCN

[[AVCHD]]

- Select this format to record HD (high definition) video for playback on your HDTV using an HDMI connection.
- It can be played back as is by inserting the card into a device compatible with AVCHD. Refer to the instructions of the device used for details on compatibility.
- Use a card with SD Speed Class with “Class 4” or higher.

[[Motion JPEG]]

- Select this format to record standard definition video for playback on your PC. It can be recorded using less storage when there is not much space left on the memory card or when you want to attach the motion picture to an e-mail.
- Use a card with SD Speed Class with “Class 6” or higher.

[Rec Quality]

For details on [Motion Picture] Mode menu settings, refer to P36.
This sets up the picture quality of motion pictures.

Applicable modes:

When [AVCHD] is selected

Item	Quality (bit rate)	fps	Aspect ratio
[FSH]	1920×1080 pixels/Approx. 17 Mbps	60i (CCD output is 30 fps)	16:9
[SH]	1280×720 pixels/Approx. 17 Mbps	60p (CCD output is 30 fps)	

- What is bit rate
  This is the volume of data for a definite period of time, and the quality becomes higher when the number gets bigger. This unit is using the “VBR” recording method. “VBR” is an abbreviation of “Variable Bit Rate”, and the bit rate (volume of data for definite period of time) is changed automatically depending on the subject to record. Therefore, the recording time is shortened when a subject with fast movement is recorded.
- [FSH] can record motion pictures with even higher definition and picture quality than [SH].

When [Motion JPEG] is selected

Item	Picture size	fps	Aspect ratio
[HD]	1280×720 pixels	30	16:9
[VGA]	640×480 pixels		4:3
[QVGA]	320×240 pixels		

- It cannot be recorded to built-in memory except for the [QVGA].

Note

- **Motion pictures recorded in [AVCHD] or [Motion JPEG] may be played back with poor picture or sound quality or playback may not be possible even when played back with equipment compatible with these formats. Also, the recording information may not be displayed properly. In this case, use this unit.**
  For details on AVCHD compatible devices, refer to the support sites below.
  http://panasonic.jp/support/global/cs/dsc/
  (This Site is English only.)
- To play back AVCHD motion pictures recorded with this unit on Panasonic Blu-ray Disc Players (DMP-BD30/DMP-BD31/DMP-BD50) it is necessary to update the firmware of the Blu-ray Disc Player.
  You can download the latest firmware version from the following website.
  http://panasonic.net/support/

[Active Mode]

For details on [Motion Picture] Mode menu settings, refer to P36.
In addition to the optical image stabilizer, the electronic image stabilizer is used, further decreasing the jitter of the image when recording motion picture while walking, etc.

Applicable modes:

[ON]/[OFF]

Note
- While recording motion pictures, the angle of view narrows.
- Stronger effect of the correction can be achieved at the wide end.
- Image stabilizer may not be as effective when recording in rooms or dark places.
- The setting is fixed to [OFF] in the following cases.
  – In [Pin Hole] or [Film Grain] in My Color Mode
  – In [Motion JPEG]

[Continuous AF]

For details on [Motion Picture] Mode menu settings, refer to P36.
It will continually keep on focusing on the subject that the focus was once set for.

Applicable modes:

[ON]/[OFF]

Note
- Set this function to [OFF] if you wish to fix the focus on the position where you started the motion picture recording.
- In [Starry Sky] and [Fireworks] in Scene Mode, this setting is fixed to [OFF].

[Wind Cut]

For details on [Motion Picture] Mode menu settings, refer to P36.
This reduces the wind noise in the audio recording.

Applicable modes:

[ON]/[OFF]

Note
- Sound quality will be different than usual when [Wind Cut] is set.

Entering Text

It is possible to enter babies' and pets' names and the names of travel destinations when recording. (Only alphabetical characters and symbols can be entered.)
You can use the stylus pen (supplied) if it is hard to operate with your fingers.

1 Display the entry screen.

- You can display the entry screen via the following operations.
  – [Name] of [Baby1]/[Baby2] or [Pet] (P56) in Scene Mode.
  – [Name] in [Face Recog.] (P65)
  – [Location] in [Travel Date] (P68)
  – [Title Edit] (P101)

2 Enter characters.



- Touch [A↔a] to switch text between [A] (capitals), [a] (small case), [1] (numbers) and [&] (special characters).
- To enter the same character again, touch [▶] to move the cursor.
- By touching the items, the operations below are carried out.
  – [␣]: Enter a blank
  – [Delete]: Delete a character
  – [◀]: Move the entry position cursor to the left
  – [▶]: Move the entry position cursor to the right
- A maximum of 30 characters can be entered. (Maximum of 9 characters when setting names in [Face Recog.])

3 Touch [Set].

Note

- Text can be scrolled if all of the entered text does not fit on the screen.

[Playback] Mode:

Creating Still Pictures From a Motion Picture

You can create a single still picture from a recorded motion picture.

1 Touch [▶/II] during Motion Picture playback.

2 Touch [Save].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Picture size

[Motion JPEG]	Picture size
[HD]	2 M (16:9)
[VGA]/[QVGA]	0.3 M (4:3)

[AVCHD]	Picture size
[FSH]/[SH]	2 M (16:9)

Note

- Still pictures created from a motion picture may be coarser than with normal picture quality.
- You may not be able to save still pictures from a motion picture taken on other equipment.
- When the subject has a bright part, reddish stripes may appear on the LCD monitor. Alternatively, part or all of the LCD monitor may turn a reddish color.

[Playback] Mode:

Various methods to playback

You can play back the recorded pictures in various methods.

1 **Touch [ ].**

2 **Touch the mode icon.**

Item	Settings
[Normal Play] (P24)	All the pictures are played back.
[Slide Show] (P96)	Images are played back in sequence.
[Filtering Play] (P98)	Images are sorted into categories and played back.
[Playback Album] (P99)	Playback pictures registered in albums with [My Photo Album].
[Dual Play] (P99)	Playing Back Pictures on the Dual Display.
[Calendar] (P99)	Images are played back by the date the picture was taken.

[Slide Show]

You can play back the pictures you have taken in synchronisation with music, and you can do this in sequence while leaving a fixed interval between each of the pictures.
You can also put together a slide show composed of only still pictures, only motion pictures, only 3D pictures etc.
We recommend this feature when you view your pictures by connecting the camera to a TV.

1 Touch the group to playback.

- Refer to P122 for the method to playback [3D PLAY] pictures in 3D.
- In [My Photo Album], touch the album you wish to play back.
  For details on [My Photo Album], refer to P116.
- In [Category Selection], touch the category you wish to play back.
  For details on categories, refer to P98.

2 Touch [Start].

■ **Operations performed during slide show**

1 Display control panel by touching screen.

- If no operation is done for 2 seconds, it will return to original status.

2 Operate control panel by touching.

▶/❚❚	Play/Pause	■	Exit slide show
⏮	Back to previous picture (while pausing/playing back motion pictures)	⏭	Ahead to next picture (while pausing/playing back motion pictures)
+	Increase volume level	−	Reduce volume level
⮌	Return to slide show set screen		

- Normal playback resumes after the slide show finishes.

■ Changing the slide show settings

You can change the settings for Slide Show Playback by selecting [Effect] or [Setup] on the slide show menu screen.

[Effect]

This allows you to select the screen effects or music effects when switching from one picture to the next.

[NATURAL], [SLOW], [SWING], [URBAN], [OFF], [AUTO]

- When [URBAN] has been selected, the picture may appear in black and white as a screen effect.
- [AUTO] can be used only when [Category Selection] has been selected. The pictures are played back with the recommended effects in each category.
- During the [Video Only] slide show, [Effect] is fixed to [OFF].
- Some [Effect] will not operate when playing back pictures displayed vertically.

[Setup]

[Duration] or [Repeat] can be set.

Item	Settings	
[Duration]	[1SEC.]/[2SEC.]/[3SEC.]/[5SEC.]	
[Repeat]	[ON]/[OFF]	
[Sound]	[AUTO]:	Music is played when the still pictures are played back, and audio is played when the motion pictures are played back.
	[Music]:	Music is played back.
	[Audio]:	Audio (only for motion pictures) is played back.
	[OFF]:	There will be no sound.

- [Duration] can be set only when [OFF] has been selected as the [Effect] setting.

[Filtering Play]

Pictures are classified into only still pictures, only motion pictures, or only 3D pictures etc., and played back.

Item	Settings
[Picture Only]	Only still pictures are played back.
[Video Only]	Only motion pictures are played back.
[3D PLAY]	Only 3D pictures are played back. • Refer to P122 for the method to playback [3D PLAY] pictures in 3D.
[Category Selection]	This mode allows you to search images by Scene Mode or other categories (such as [Portrait], [Scenery] or [Night Scenery]) and sort the pictures into each of the categories. You can then play back the pictures in each category. **Touch the category to play back.** • Only the category for which pictures have been found can be selected. 
[Favorite]	You can play back the pictures you have set as [Favorite] (P107).

■ **About the categories to be sorted**

It will be sorted as following when [Category Selection] is set.

	Recording information e.g. Scene Modes
	[Face Recog.]*
	[Portrait], [i-Portrait], [Transform], [Self Portrait], [Night Portrait], [i-Night Portrait], [Baby1]/[Baby2], [i-Baby], [Cosmetic Mode]
	[Scenery], [i-Scenery], [Sunset], [i-Sunset], [Aerial Photo]
	[Night Portrait], [i-Night Portrait], [Night Scenery], [i-Night Scenery], [Handheld Night Shot], [Starry Sky]
	[Sports], [Party], [Candle Light], [Fireworks], [Beach], [Snow], [Aerial Photo]
	[Baby1]/[Baby2], [i-Baby]
	[Pet]
	[Food]
	[Travel Date]

* Play back by selecting and touching the picture of the person you desire to play back.

[Playback Album]

Pictures registered to an album can be played back by the albums with [My Photo Album].
• For details on [My Photo Album], refer to P116.

[Dual Play]

You can display two recorded pictures on the screen to compare them.



Note
- You cannot select [Dual Play] if there are no recorded pictures or only 1 recorded picture.
- You cannot display the same picture on the dual display at the same time.
- [Dual Play] is not available for motion pictures.
- [Setup] menu and [Playback] mode menu cannot be used.

[Calendar]

You can display pictures by recording date.

1 Touch [▲]/[▼] to select the month to be played back.
- If there were no pictures recorded during a month, that month is not displayed.
- Touch [ ] to display the multi playback screen.



2 Select the date you wish to play back, and then touch [Set].

3 Touch the picture you wish to play back.
- Touch [CAL] to return to the calendar search display screen.



Note
- The recording date of the picture selected in the playback screen becomes the date selected when the calendar screen is first displayed.
- If there are multiple pictures with the same recording date, the first picture recorded on that day is displayed.
- You can display the calendar between January 2000 and December 2099.
- If the date is not set in the camera, the recording date is set as January 1st, 2011.
- If you take pictures after setting the travel destination in [World Time], the pictures are displayed by the dates at the travel destination in Calendar Playback.

[Playback] Mode:

Using the [Playback] Mode Menu

You can setup pictures to be uploaded to image sharing sites and perform editing like cropping recorded pictures, as well as set up the protection of recorded images, etc.
- With [Text Stamp], [Resize] or [Cropping], a new edited picture is created. A new picture cannot be created if there is no free space on the built-in memory or the card so we recommend checking that there is free space and then editing the picture.

[Upload Set]

It is possible to setup the images to be uploaded to the image sharing sites (Facebook/YouTube) on this unit.
- You can only upload still pictures to Facebook, and only motion pictures to YouTube.
- **This cannot be done to the images in the built-in memory. Copy the images to a card (P112), and then perform the [Upload Set].**

1 Select [Upload Set] on the [Playback] Mode menu. (P36)

2 Touch [ ] ([Single]) or [ ] ([Multi]).

3 Select the picture.

[Single] setting

Drag the screen horizontally to select an image, and then touch [Set].

- Setting is canceled by touching [Cancel].
- Exit the menu after it is set.



[Multi] setting

1 Touch the picture you wish to upload (repeat).
- Setting will be canceled by touching the same picture again.

2 Touch [OK].
- Confirmation screen is displayed. It is executed when [Yes] is selected.
  Exit the menu after it is executed.



■ Upload to the image sharing sites

An upload tool built-in to the camera “LUMIX Image Uploader” is automatically copied to the card when you setup [Upload Set].
Perform the upload operation after connecting the camera to a PC (P127). For details, refer to P130.

■ **Canceling all the [Upload Set] settings**

1 **Select [Upload Set] on the [Playback] Mode menu.**

2 **Touch [CANCEL].**

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- Setting may not be possible for pictures recorded with other cameras.
- It cannot be set with the card less than 512 MB.

[Title Edit]

You can add text (comments) to pictures. After text has been registered, it can be stamped in prints using [Text Stamp] (P102).

1 **Select [Title Edit] on the [Playback] Mode menu.** **(P36)**

2 **Touch [ ] ([Single]) or [ ] ([Multi]).**

3 **Select an image to add text to.**

- [ ] is displayed for pictures with titles already registered.

[Single] setting

1 **Drag the screen horizontally and select an image.**

2 **Touch [Set].**



[Multi] setting

1 **Touch a picture (repeat).**

- Selection will be canceled by touching the same picture again.

2 **Touch [OK].**



4 **Enter the text.** **(P93)**

- Exit the menu after it is set.

Note

- To delete the title, erase all the text in the text input screen.
- You can print out texts (comments) using the “PHOTOfunSTUDIO” bundled software on the CD-ROM (supplied).
- You can set up to 50 pictures at one time with [Multi].
- You cannot use [Title Edit] for the following types of pictures:
  – Motion pictures
  – Pictures recorded with other equipment

[Text Stamp]

You can stamp the recording date/time, name, location, travel date or title onto the recorded pictures.

1 **Select [Text Stamp] on the [Playback] Mode menu.** (P36)

2 **Touch [ ] ([Single]) or [ ] ([Multi]).**

3 **Select an image you wish to stamp with text.**

- [ ] is displayed on pictures already with date or text stamped.

[Single] setting

1 **Drag the screen horizontally and select an image.**

2 **Touch [Set].**

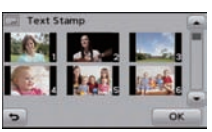


[Multi] setting

1 **Touch a picture (repeat).**

- Selection will be canceled by touching the same picture again.

2 **Touch [OK].**



4 **Touch [Set].**

5 Select the item to stamp.

Item	Setting item	
[Shooting Date]	[W/O TIME]:	Stamp the year, month and date.
	[WITH TIME]:	Stamp the year, month, day, hour and minutes.
	[OFF]	
[Name]	[👤]:	Stamps names registered in name settings for [Face Recog.].
	[👶/🐾]:	Stamps names registered in name settings for [Baby1]/[Baby2] or [Pet] in Scene Mode.
	[OFF]	
[Location]	[ON]:	Stamps the travel destination name set under [Location].
	[OFF]	
[Travel Date]	[ON]:	Stamps the travel date set under [Travel Date].
	[OFF]	
[Title]	[ON]:	Title input in the [Title Edit] will be stamped.
	[OFF]	

6 Touch [↩].

7 Touch [OK].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- When you print pictures stamped with text, the date will be printed over the stamped text if you specify printing of the date at the photo shop or on the printer.
- You can set up to 50 pictures at one time in [Multi].
- The picture quality may deteriorate when text stamping is carried out.
- Depending on the printer being used, some characters may be cut at printing. Check before printing.
- When text is stamped onto the images smaller than 0.3 M, it is difficult to read it.
- Text and dates cannot be stamped on the pictures in the following cases.
  - Motion pictures
  - Pictures recorded without setting the clock and title
  - Pictures with date or text stamped
  - Pictures recorded with other equipment

[Video Divide]

Recorded motion picture can be divided in two. It is recommended for when you want to divide a part you need with a part you do not need.
It cannot be restored once divided.

1 Select [Video Divide] on the [Playback] Mode menu. (P36)

2 Drag the screen horizontally to select a motion picture to divide, and touch [Set].

3 Touch [▶/II] at the location to divide.

- Motion picture is played back from the same location when [▶/II] is touched again.

4 Touch [ ].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.
- Motion picture may be lost if the card or battery is removed while processing the dividing.

Note

- [Video Divide] may not be performed on motion pictures recorded with other equipment.
- Motion pictures cannot be divided at a location close to the start or end of the motion picture.
- With [Motion JPEG] motion pictures, the order of pictures will change if divided. It is recommended to display these motion pictures by using [Calendar] or [Video Only] in the [Filtering Play].
- With [AVCHD] motion pictures, the order of pictures will not change.
- Motion pictures with a short recording time cannot be divided.

[Resize]

To allow easy posting to web pages, attachment to e-mail etc., picture size (number of pixels) is reduced.

1 Select [Resize] on the [Playback] Mode menu. (P36)

2 Touch [ ] ([Single]) or [ ] ([Multi]).

3 Select the picture and size.

[Single] setting

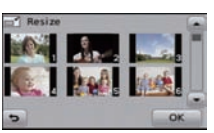


1 Drag the screen horizontally to select an image, and then touch [Set].

2 Touch the size you wish to change, and then touch [Set].

- Confirmation screen is displayed. It is executed when [Yes] is selected.
  Exit the menu after it is executed.

[Multi] setting



1 Touch the size you wish to change.

2 Touch a picture (repeat).

- Selection will be canceled by touching the same picture again.

3 Touch [OK].

- Confirmation screen is displayed. It is executed when [Yes] is selected.
  Exit the menu after it is executed.

Note

- You can set up to 50 pictures at one time in [Multi].
- The picture quality of the resized picture will deteriorate.
- It may not be possible to resize pictures recorded with other equipment.
- Motion pictures or still pictures with date or text stamped cannot be resized.

[Cropping]

You can enlarge and then crop the important part of the recorded picture.

1 Select [Cropping] on the [Playback] Mode menu. (P36)

2 Drag the screen horizontally to select an image, and then touch [Set].

3 Select the parts to be cropped.

Touch [ ]: Enlarge
Touch [ ]: Reduce
Drag: Move

4 Touch [Set].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- The picture quality of the cropped picture will deteriorate.
- It may not be possible to crop pictures recorded with other equipment.
- Motion pictures or still pictures with date or text stamped cannot be cropped.
- Information regarding the Face Recognition in the original picture will not be copied to images having undergone [Cropping].

[Favorite]

You can do the following if a mark has been added to pictures and they have been set as favorites.

- Play back only the pictures set as favorites. ([Favorite] in [Filtering Play])
- Play back the pictures set as favorites only as a slide show.
- Delete all the pictures not set as favorites. ([All Delete Except★])

1 Select [Favorite] on the [Playback] Mode menu. (P36)

2 Touch [★S] ([Single]) or [★M] ([Multi]).

3 Select the picture.

[Single] setting

Drag the screen horizontally to select an image, and then touch [Set].

- Setting is canceled by touching [Cancel].
- Exit the menu after it is set.



[Multi] setting

Touch the pictures you wish to set as favorites.

- Setting is canceled by touching the same picture again.
- Exit the menu after it is set.



■ Canceling all the [Favorite] settings

1 Select [Favorite] on the [Playback] Mode menu.

2 Touch [CANCEL].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- You can set up to 999 pictures as favorites.
- You may not be able to set pictures taken with other equipment as favorites.

[Print Set]

DPOF “Digital Print Order Format” is a system that allows the user to select which pictures to print, how many copies of each picture to print and whether or not to print the recording date on the pictures when using a DPOF compatible photo printer or photo printing store. For details, ask at your photo printing store.
When you want to use a photo printing store to print pictures recorded on the built-in memory, copy them to a card (P112) and then set the print setting.
For more information visit:
http://panasonic.jp/dc/dpof_110/white_e.htm

1 **Select [Print Set] on the [Playback] Mode menu. (P36)**

2 **Touch [ ] ([Single]) or [ ] ([Multi]).**

3 **Select the picture.**

[Single] setting
Drag the screen horizontally to select an image, and then touch [Set].



[Multi] setting
Touch the picture you wish to print.



4 **Touch [▲]/[▼] to set the number of prints, and then touch [Set] to set.**

- When [Multi] has been selected, repeat steps **3** and **4** for each picture. (It is not possible to use the same setting for a multiple number of pictures.)
- Exit the menu after it is set.

■ **Canceling all the [Print Set] settings**

1 Select [Print Set] on the [Playback] Mode menu.

2 Touch [CANCEL].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

■ **To print the date**

After setting the number of prints, set/cancel printing with the recording date by touching [Date].

- Depending on the photo printing store or the printer, the date may not be printed even if you set to print the date. For further information, ask at your photo printing store or refer to the operating instructions for the printer.
- The date cannot be printed on pictures with date or text stamped.

Note

- The number of prints can be set from 0 to 999.
- Depending on the printer, the date print settings of the printer may take precedence so check if this is the case.
- It may not be possible to use the print settings with other equipment. In this case, cancel all the settings, and reset the settings.
- [Print Set] cannot be set for motion pictures.
- If the file is not based on the DCF standard, the print setting cannot be set.

[Protect]

You can set protection for pictures you do not want to be deleted by mistake.

1 Select [Protect] on the [Playback] Mode menu. (P36)

2 Touch [ ] ([Single]) or [ ] ([Multi]).

3 Select the picture.

[Single] setting

Drag the screen horizontally to select an image, and then touch [Set].



- Setting is canceled by touching [Cancel].
- Exit the menu after it is set.

[Multi] setting

Touch the picture you wish to protect.



- Setting is canceled by touching the same picture again.
- Exit the menu after it is set.

■ Canceling all the [Protect] settings

1 Select [Protect] on the [Playback] Mode menu.

2 Touch [CANCEL].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- The protect setting may not be effective on other equipment.
- Even if you protect pictures in the built-in memory or a card, they will be deleted if the built-in memory or the card is formatted.
- Even if you do not protect pictures on a card, they cannot be deleted when the card's Write-Protect switch is set to [LOCK].

[Face Rec Edit]

You can delete or change the information relating to Face Recognition for the selected picture.

1 Select [Face Rec Edit] on the [Playback] Mode menu. (P36)

2 Touch [REPLACE] ([Replace]) or [DELETE] ([Delete]).

3 Drag the screen horizontally to select an image, and then touch [Set].

4 Touch the name of the person you wish to edit.

5 (When [Replace] is selected) Touch the person to replace.

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.

Note

- Cleared information regarding the [Face Recog.] cannot be restored.
- When all Face Recognition information in a picture has been canceled, the picture will not be categorized using Face Recognition in [Category Selection] in [Filtering Play].
- You cannot edit the Face Recognition information of protected pictures.

[Copy]

You can copy data of pictures you have taken from the built-in memory onto a card or from a card into the built-in memory.

1 Select [Copy] on the [Playback] Mode menu. (P36)

2 Touch the copy destination.

: All the picture data in the built-in memory are copied onto the card at one time.

: One picture at a time is copied from the card to the built-in memory.

3 (When [ ] is selected) Drag the screen horizontally to select an image, and then touch [Set].

- Confirmation screen is displayed. It is executed when [Yes] is selected. Exit the menu after it is executed.
- Do not turn the camera off at any point during the copying process.

Note

- If a picture exists with the same name (folder number/file number) as the picture to be copied in the copy destination when [ ] is selected, a new folder is created and the picture is copied.

  If a picture exists with the same name (folder number/file number) as the picture to be copied in the copy destination when [ ] is selected, that picture is not copied.

- It may take time to copy the picture data.
- [Print Set], [Protect] or [Favorite] settings will not be copied. Perform the settings again after copying is finished.
- Motion picture recorded in [AVCHD] cannot be copied.

Having Fun with Recorded Pictures

[Beauty Retouch]

You can optimize the color and tone of skin and change the impression of the face.

1 Select [ ] in the playback screen, and then touch [ ]. (P35)

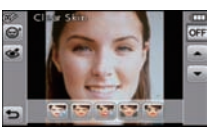
2 Drag the screen horizontally to select an image, and then touch [OK].

3 Touch the face of the person to edit.

- Only a person with an arrow can be selected.

4 Select [ ] or [ ], and touch an item.

- Touch [▲]/[▼] to arrange settings of your choice.
- Touch [OK] when picture editing has finished.
- Images before application and after application are displayed.



[ ] [Aesthetic Retouch] (5 levels of effect are available)

Item	Description of settings
: [Clear Skin]	Reduces blemishes and dullness in the skin while bringing out clearness.
: [Shine Removal]	Shiny areas of the skin are matted down.
: [Whitening]	Eyes and teeth are whitened and beautified.
: [Lift Up]	Face lines are sharpened.
: [Eye Emphasis]	Eyes look bigger and defined.

[ ] [Make Up Retouch] (5 color effects are available)

Item	Description of settings
: [Foundation]	Color of the skin is adjusted.
: [Lip Color]	Color of the lips is adjusted to highlight the texture.
: [Cheek Color]	Outline can be selected from 3 options to produce a 3D appearance.
: [Eye Shadow]	Shape of the eye is defined.

5 Touch [OK].

- You can go ahead and edit another person.
  Repeat steps **3** and **4**.
- People already edited cannot be edited again. If you want to edit again, save the picture once and go back to select the person again.

6 Touch [Save].

- Confirmation screen is displayed. It is executed when [Yes] is selected.

Note

- [Beauty Retouch] is not available in 3D pictures or motion pictures.
- [Beauty Retouch] may not be performed on images recorded with other equipment.
- With [Beauty Retouch], a new edited picture is created. Check that there is free space on the built-in memory or the card.
- Intended retouching may not be possible when the face detection is not performed properly.
- To take pictures appropriate for [Beauty Retouch]:
  – Take pictures of the face from the front
  – Avoid taking pictures in a very dark place
  – Make sure that the facial contours, eyes, or eyebrows are not blocked by hair, etc.

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[Art Retouch]

You can change the saturation or brightness of recorded pictures, and create impressive pictures.

1 **Select [ ] in the playback screen, and then touch [ ]. (P35)**

2 **Drag the screen horizontally to select an image, and then touch [OK].**

3 **Touch the item.**

Item	Description of settings
	Saturation can be changed in ±6 steps.
	Brightness can be changed in ±6 steps.

4 **Drag the slide bar to set the effects.**



5 **Touch [OK].**

- Confirmation screen is displayed. It is executed when [Yes] is selected.

Note

- [Art Retouch] is not available in 3D pictures or motion pictures.
- [Art Retouch] may not be performed on images recorded with other equipment.
- With [Art Retouch], a new edited picture is created. Check that there is free space on the built-in memory or the card.

[My Photo Album]

Pictures can be copied into specific albums and you can selectively retrieve your favorite ones. Registering pictures contained in the card by album allows the following.
- Playing back only the pictures registered in albums. ([Playback Album])
- Playing back the pictures registered in albums only as a slide show.

1 Select [ ] in the playback screen, and then touch [ ]. (P35)

2 Touch a picture to register.
(repeat this step)
- Touch the same picture again to cancel the selection.

3 Touch the picture you selected in step 2 until the selection frame reappears and drag it to the album where you want to register it.



- Three types of albums [MY1]/[MY2]/[MY3] are available for registration.
- Up to 999 pictures can be registered in a single album.

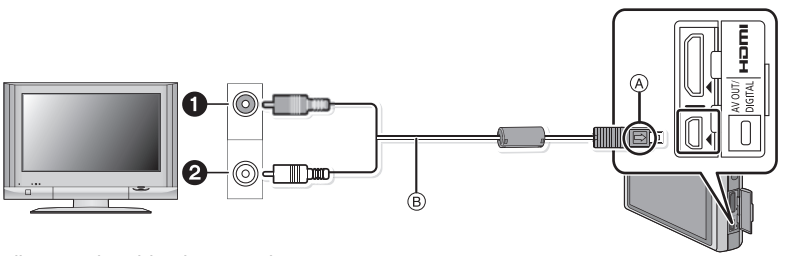
Note
- Pictures in the built-in memory cannot be registered in albums. Register them after copying them to cards.
- Pictures registered in an album are newly created. Pictures cannot be registered if there is no free space in the card, so we recommend checking that there is free space and then starting the registration of the pictures.
- Motion pictures cannot be registered in albums.
- Pictures recorded with other equipment may not be registered in albums.
- Pictures registered to an album are deleted when formatted.

[Playback] Mode:

Playing Back Pictures on a TV Screen

Playing back pictures using the AV cable (supplied)

Preparations:
Set the [TV Aspect]. (P43)
Turn this unit and the TV off.



❶ Yellow: to the video input socket
❷ White: to the audio input socket
Ⓐ Align the marks, and insert.
Ⓑ AV cable (supplied)
• Check the directions of the connectors, and plug them straight in or unplug them straight out. (Otherwise the connectors may be bent out of shape which may cause malfunction.)

1 Connect the AV cable Ⓑ (supplied) to the video input and the audio input sockets on the TV.

2 Connect the AV cable to the [AV OUT] socket on the camera.

3 Turn the TV on and select external input.

4 Turn the camera on, and set to the Playback Mode.

Note
• Depending on the [Aspect Ratio], black bands may be displayed on the top and bottom or the left and right of the pictures.
• Do not use any other AV cables except the supplied one.
• Read the operating instructions for the TV.
• When you play back a picture vertically, it may be blurry.
• Change the screen mode on your TV if the picture is displayed with the top or bottom cut off.
• You cannot select [Dual Play].

Playing back pictures on a TV with an SD Memory Card slot

The recorded still pictures can be played back on a TV with an SD Memory Card slot.

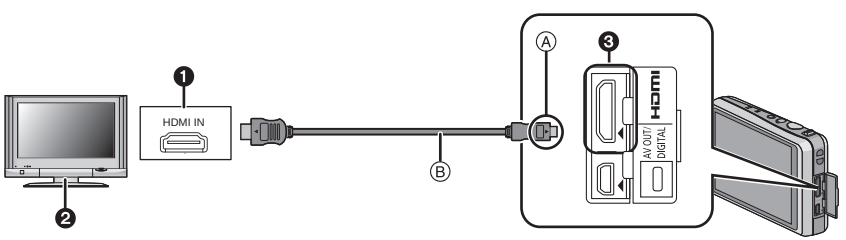
Note

- Depending on the TV model, pictures may not be displayed on the full screen.
- Motion pictures recorded with [AVCHD] can be played back on Panasonic TVs (VIERA) with the AVCHD logo mark. In all other cases, connect the camera to the TV using the AV cable (supplied) and playback the motion picture.
- SDHC Memory Cards cannot be played back unless it is a TV compatible with SDHC Memory Cards or SDXC Memory Cards.
- SDXC Memory Cards cannot be played back unless it is a TV compatible with SDXC Memory Cards.

Playing back on the TV with HDMI socket

You can enjoy high quality pictures and motion pictures on the TV by connecting the camera with the HDMI compatible high definition TV using HDMI mini cable (optional).

Preparations: Turn this unit and the TV off.



❶ HDMI socket
❷ TV with HDMI socket
❸ HDMI mini (C type)
Ⓐ Align the marks, and insert.
Ⓑ HDMI mini cable (optional)

- Check the direction of the terminals and plug in/out straight holding onto the plug. (It may result in malfunction by the deforming of the terminal if it is plugged in obliquely or in wrong direction.)

1 Connect the HDMI mini cable Ⓑ (optional) to the HDMI input socket on the TV.

2 Connect the HDMI mini cable to the [HDMI] socket on the camera.

3 Turn the TV on and switch to HDMI input.

4 Turn the camera on, and set to the Playback Mode.

Note

- During HDMI output, the touch icons for operation are displayed on the LCD monitor of this unit. (Pictures are not displayed on the LCD monitor)
- Depending on the [Aspect Ratio], bands may be displayed on the top and bottom or the left and right of the pictures.
- Always use a genuine Panasonic HDMI mini cable (RP-CDHM15, RP-CDHM30; optional). Part numbers: RP-CDHM15 (1.5 m) (5 feet), RP-CDHM30 (3.0 m) (10 feet)
- Output from the HDMI mini cable has priority when both AV cable and HDMI mini cable are connected.
- The connection with the USB connection cable will take priority when you connect the USB connection cable simultaneously with the HDMI mini cable.
- When pictures are displayed, they may not be displayed properly depending on the type of TV.
- Read the operating instructions for the TV.
- Audio will be played back as monaural.

Playback using VIERA Link (HDMI) (HDAVI Control™)

What is the VIERA Link?

- VIERA Link™ is a new name for EZ Sync™.
- This function allows you to use your remote control for the Panasonic TV for easy operations when this unit has been connected to a VIERA Link compatible device using a HDMI mini cable (optional) for automatic linked operations. (Not all operations are possible.)
- VIERA Link is a unique Panasonic function built on a HDMI control function using the standard HDMI CEC (Consumer Electronics Control) specification. Linked operations with HDMI CEC compatible devices made by other companies are not guaranteed. When using devices made by other companies that are compatible with VIERA Link, refer to the operating instructions for the respective devices.
- This unit is compatible with VIERA Link Ver.5. VIERA Link Ver.5 is the newest Panasonic version and is also compatible with existing Panasonic VIERA Link devices. (As of December 2010)

Preparations: Set the [VIERA Link] to [ON]. (P44)

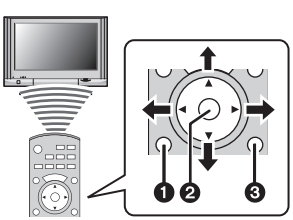
1 Connect this unit to a Panasonic TV compatible with VIERA Link with an HDMI mini cable (optional) (P118).

2 Turn the camera on, and set to the Playback Mode.

3 Operate with the remote control for the TV.

- Operate with reference to the operation icons displayed on the screen.

Panasonic TV compatible with VIERA Link



1. [SUB MENU]
2. [OK]
3. [RETURN]

* The shape of the remote control varies depending on the region. Operate following the TV guide displayed on screen.

Note

- To play back the audio of the motion pictures, set the [Sound] in the Slide Show setting screen to [AUTO] or [Audio].
- Operation icons are hidden, if no operation is performed for a while when the operation icons are displayed. Operation icons are displayed when one of the following buttons is pressed while the operation icons are not displayed.
  – ▲/▼/◄/►, [OK], [SUB MENU], [RETURN], Red button, Green button, Yellow button
- It is recommended to connect this unit to an HDMI terminal other than the HDMI1 if there are 2 or more HDMI input terminals on the TV.
- When the [VIERA Link] (P44) of this unit is set to [ON], operation on this unit will be limited.
- VIERA Link must be activated on the connected TV. (Read the operating instructions of the TV for how to set etc.)
- If you are not using VIERA Link, set [VIERA Link] (P44) to [OFF].

■ Other linked operations

Turning the power off:

If you use the remote control for the TV to turn off the power, the power on this unit also turns off.

Automatic input switching:

- If you connect with a HDMI mini cable and then turn on the power on this unit, the input channel on the TV automatically switches to this unit's screen. If the TV's power is in standby status, it will turn on automatically (if [Set] has been selected for the TV's [Power on link] setting).
- Depending on the HDMI terminal on the TV, the input channel may not switch automatically. In this case, use the remote control for the TV to switch the input channel. (For details on how to switch input, please read the operating instructions for the TV.)
- If VIERA Link does not work properly, refer to page 152.

Note

- If you are unsure whether or not the TV you are using is compatible with VIERA Link, read the operating instructions for the TV.
- Available linked operations between this unit and a Panasonic TV is different depending on the types of Panasonic TVs even if they are compatible with VIERA Link. Refer to the operating instructions of the TV for the operations that support the TV.
- Operation is not possible with a cable that is not based on the HDMI standard.
  Always use a genuine Panasonic HDMI mini cable (RP-CDHM15, RP-CDHM30; optional).
  Part numbers: RP-CDHM15 (1.5 m) (5 feet), RP-CDHM30 (3.0 m) (10 feet)
- VIERA Link will not work even if you connect the HDMI mini cable while the unit is connected to the PC or the printer.

Playing back 3D pictures

Playing back 3D pictures

Connecting the camera to a 3D compatible television and playing back pictures taken in 3D allows you to enjoy 3D pictures for extra impact.
It is also possible to playback the recorded 3D pictures by inserting an SD card into the 3D compatible television with an SD card slot.

http://panasonic.jp/support/global/cs/dsc/ (This Site is English only.)

Preparations: Set the [3D PLAYBACK] to [3D]. (P44)

1 Connect the unit to a 3D compatible television using the HDMI mini cable and display the playback screen. (P118)

2 Select [3D PLAY] in [Slide Show] (P96) or [Filtering Play] (P98).

- When [VIERA Link] (P44) is set to [ON] and the camera is connected to a TV supporting VIERA Link, input of the TV will be switched automatically and playback screen will be displayed. Refer to P120 for details.
- For the pictures recorded in 3D, [3D] will appear on the thumbnail display at playback.

■ Functions that cannot be set/do not work with 3D pictures

- Playback Zoom✳
- Deleting pictures✳
- Editing functions of [Playback] Mode menu ([Title Edit]/[Text Stamp]/[Resize]/[Cropping])

✳ Can be used when displayed in 2D.

Note

- When a picture recorded in 3D is displayed on the LCD monitor of this unit, it is played back in 2D (conventional image).
- A black screen is displayed for a few seconds when switching back and forth playback of 3D pictures and 2D pictures.
- When you select a 3D picture thumbnail, it may take a few seconds for playback to start. After playback, the thumbnail display may take a few seconds to reappear.
- When viewing 3D pictures, your eyes may become tired if you are too close to the television screen.
- If your television does not switch to a 3D picture, make the necessary settings on the TV. (For details, refer to the operating instructions of the TV.)

Saving 3D pictures

■ Copying to a PC

- For details, refer to “Copying to a PC using “PHOTOfunSTUDIO”” on P126.

Saving the Recorded Still Pictures and Motion Pictures

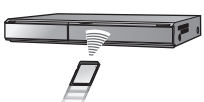
Methods to export still pictures and motion pictures to other devices will vary depending on the file format. (JPEG, MPO, AVCHD, or Motion JPEG). Here are a few suggestions.

Copy by inserting the SD card into the recorder

File formats that can be used: [JPEG], [AVCHD]

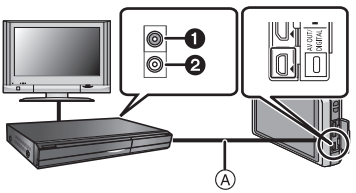
It is possible to copy onto Blu-ray disc, DVD disc, or hard disk by inserting an SD card with still pictures and motion pictures recorded by this unit into a Panasonic Blu-ray Disc Recorder or DVD Recorder.
Check the latest information about the equipment that can copy directly by inserting the SD card recorded by this unit, and equipment that is compatible with high definition (AVCHD) on the following website.
http://panasonic.jp/support/global/cs/dsc/ (This Site is English only.)

- See the instruction manual for the recorder about the details of copying and playing back.
- **Note that the equipment described may not be available in certain countries and regions.**



Copy the playback image using an AV cable

File formats that can be used: [AVCHD], [Motion JPEG]
Copy images played back with this unit to Blu-ray disc, DVD disc, hard disk, or video using a Blu-ray Disc Recorder, DVD recorder, or video.
This can be played back with equipment that is not compatible with high definition (AVCHD), so it is convenient for distributing copies. Image will be standard quality instead of high definition at this time.



❶ Yellow: to the video input socket
❷ White: to the audio input socket
Ⓐ AV cable (supplied)

1 Connect this unit with the recording equipment with an AV cable (supplied).
2 Start the playback of this unit.
3 Start the recording on the recording equipment.
- When ending the recording (copying), stop the playback on this unit after stopping the recording of the recording equipment.

Note
- When you play back motion pictures on 4:3 aspect ratio TV, you must set [TV Aspect] (P43) on this unit to [4:3] before starting a copy. The image will be vertically long if you play back motion pictures copied with [16:9] setting on a [4:3] aspect TV.
- Do not use any other AV cables except the supplied one.
- Displayed touch icons, etc., are also recorded.
- See the instruction manual for the recording equipment regarding the details of copying and playing back.

Copying to a PC using “PHOTOfunSTUDIO”

File formats that can be used: [JPEG], [MPO], [AVCHD], [Motion JPEG]
It is possible to acquire still pictures and motion pictures recorded in [AVCHD] or [Motion JPEG] formats, or create conventional standard quality DVD video from the motion picture that was recorded as [AVCHD], using “PHOTOfunSTUDIO” in the CD-ROM (supplied). (P127)

Also, you can write images to DVD, combine multiple pictures to create a single panorama picture, or create a slide show by adding audio and/or music. These pictures can then be stored onto a DVD.



1 Install “PHOTOfunSTUDIO” to the PC.

- Read the separate instructions for the supplied software for more information about the software in the CD-ROM (supplied) and how to install it.

2 Connect camera to PC.

- For details on connecting, refer to “Connecting to a PC” (P127).

3 Copy the images to a PC using “PHOTOfunSTUDIO”.

- For details, refer to the operating instructions of “PHOTOfunSTUDIO” (PDF).

Note

- You will not be able to play back the acquired [AVCHD] motion pictures when the files or folders related to the motion pictures are deleted, modified, or moved using Windows Explorer or similar, so make sure to acquire the [AVCHD] motion pictures using “PHOTOfunSTUDIO”.

Connecting to a PC

You can transfer the pictures in the camera to a PC by connecting the camera and the PC.

- Some PCs can read directly from the card removed from the camera. For details, refer to the operating instructions of your PC.
- **If the computer being used does not support SDXC Memory Cards, a message prompting you to format may appear. (Doing so will cause recorded images to be erased so do not choose to format.)**
  If the card is not recognized, please refer to the below support site.
  http://panasonic.net/avc/sdcard/information/SDXC.html
- You can easily print out or mail the pictures you have imported. Use of the "PHOTOfunSTUDIO" bundled software on the CD-ROM (supplied) is a convenient way of doing this.
- Read the separate instructions for the supplied software for more information about the software in the CD-ROM (supplied) and how to install it.

■ PC that can be used

	Windows			Macintosh
	98/98SE or older	Me/2000	XP/Vista/7	OS 9/OS X
Can the PHOTOfunSTUDIO be used?	—		○∗1	—
Can the [AVCHD] motion picture be acquired to the PC?	—		○∗2	—
Can the still pictures and [Motion JPEG] motion pictures in the digital camera be acquired to the PC using a USB connection cable?	—	○		○ (OS 9.2.2/OS X [10.1~10.6])

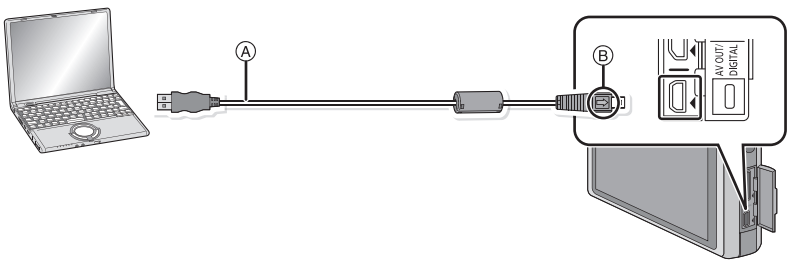
- PC with Windows 98/98SE or older, or Mac OS 8.x or older cannot be connected via USB, but it can acquire the pictures if an SD memory card reader/writer can be used.

∗1 It is necessary for Internet Explorer 6.0 or newer to be installed. PC with higher processing performance is required depending on the function to be used. It may not play back correctly or operate correctly depending on the environment of the PC used.

∗2 Always acquire the [AVCHD] motion pictures using the "PHOTOfunSTUDIO".

Acquiring of still pictures and [Motion JPEG] motion pictures (other than [AVCHD] motion pictures)

Preparations:
Turn on the camera and the PC.
Remove the card before using the pictures in the built-in memory.



Ⓐ USB connection cable (supplied)
- Check the directions of the connectors, and plug them straight in or unplug them straight out. (Otherwise the connectors may be bent out of shape which may cause malfunction.)

Ⓑ Align the marks, and insert.
- Use a battery with sufficient battery power or the AC adaptor (optional) and DC coupler (optional). If the remaining battery power becomes low while the camera and the PC are communicating, the alarm beeps.
  Refer to “Disconnecting the USB connection cable safely” (P130) before disconnecting the USB connection cable. Otherwise, data may be destroyed.

1 Connect the camera to a PC via the USB connection cable Ⓐ (supplied).

- **Do not use any other USB connection cables except the supplied one. Use of cables other than the supplied USB connection cable may cause malfunction.**

2 Touch [PC].

- If [USB Mode] (P42) is set to [PC] in the [Setup] menu in advance, the camera will be automatically connected to the PC without displaying the [USB Mode] selection screen.
- When the camera has been connected to the PC with [USB Mode] set to [PictBridge(PTP)], a message may appear on the PC’s screen. Select [Cancel] to close the screen, and disconnect the camera from the PC. Then set [USB Mode] to [PC] again.

3 Operate the PC.

- You can save the images into the PC by drag and drop the image or the folder with the image you would like to transfer onto the different folder in the PC.

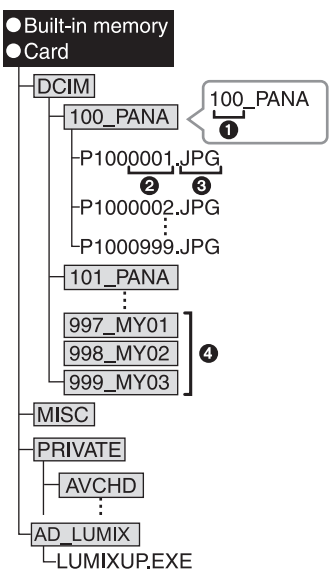
Note

- Before connecting or disconnecting the AC adaptor (optional), turn the camera off.
- Before inserting or removing a card, turn the camera off and disconnect the USB connection cable. Otherwise, data may be destroyed.

■ Viewing the contents of the built-in memory or card using the PC (folder composition)

For Windows: **A drive ([Removable Disk]) is displayed in [My Computer]**

For Macintosh: **A drive ([LUMIX], [NO_NAME] or [Untitled]) is displayed on the desktop**



DCIM:	Images
❶ Folder number	
❷ File number	
❸ JPG:	Still pictures
MOV:	[Motion JPEG] Motion pictures
MPO:	3D pictures
❹ [My Photo Album]	
MISC:	DPOF print
	Favorite
AVCHD:	[AVCHD] Motion pictures
AD_LUMIX:	For Upload set
LUMIXUP.EXE:	Upload tool “LUMIX Image Uploader”

A new folder is created when pictures are taken in the following situations.

- After [No.Reset] (P42) in the [Setup] menu has been executed
- When a card containing a folder with the same folder number has been inserted (Such as when pictures were taken using another maker of camera)
- When there is a picture with file number 999 inside the folder

■ **Disconnecting the USB connection cable safely**

• Proceed with the hardware removal using “Safely Remove Hardware” on the task tray of the PC. If the icon is not displayed, check that [Access] is not displayed on the LCD monitor of the digital camera before removing the hardware.

■ **Connection in the PTP Mode (Windows® XP, Windows Vista®, Windows® 7 and Mac OS X only)**

Set [USB Mode] to [PictBridge(PTP)].

• Data can now be read only from the card into the PC.
• When there are 1000 or more pictures on a card, the pictures may not be imported in the PTP Mode.
• [AVCHD] motion picture cannot be played back in PTP Mode.

Uploading the images to sharing sites

Still pictures and motion pictures can be uploaded to image sharing sites (Facebook/YouTube) using the upload tool “LUMIX Image Uploader”.
You do not need to transfer the images to the PC or install dedicated software onto the PC, so you can easily upload the images even away from your home or work if there is a PC that is connected to the network.

• It is only compatible with a PC with Windows XP/Windows Vista/Windows 7.
(View the operating instructions of the “LUMIX Image Uploader” using Internet Explorer)

Preparations:
Setup the images to upload with [Upload Set] (P100).
Connect the PC to the Internet.
Create an account at the image sharing site to be used, and prepare the login information.

1 Startup the “LUMIXUP.EXE” by double-clicking it. **(P129)**

• An upload tool “LUMIX Image Uploader” may startup automatically if the “PHOTOfunSTUDIO” software on the CD-ROM (supplied) is installed.

2 Select the destination to upload.

• Operate following the instructions displayed on the PC screen.

Note

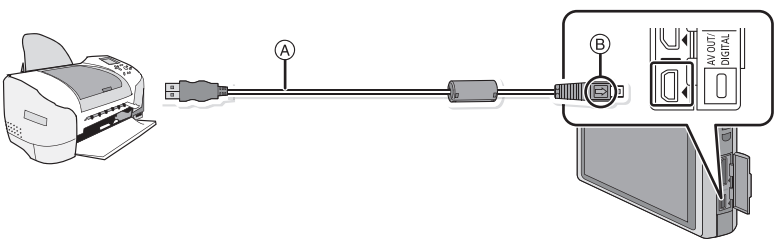
• Operation cannot be guaranteed for future specification changes of the YouTube and Facebook services. Service contents or screen may be modified without notice.
(This service is as of December 1st, 2010)
• Do not upload any images protected by copyright, unless you own the copyright yourself, or have permission from the relevant copyright holder.

Printing the Pictures

If you connect the camera to a printer supporting PictBridge, you can select the pictures to be printed out and instruct that printing be started from the camera's LCD monitor.

- Some printers can print directly from the card removed from the camera. For details, refer to the operating instructions of your printer.

Preparations:
Turn on the camera and the printer.
Remove the card before printing the pictures from the built-in memory.
Perform the print quality and other settings at the printer before printing the pictures.



Ⓐ USB connection cable (supplied)

- Check the directions of the connectors, and plug them straight in or unplug them straight out. (Otherwise the connectors may be bent out of shape which may cause malfunction.)

Ⓑ Align the marks, and insert.

- Use a battery with sufficient battery power or the AC adaptor (optional) and DC coupler (optional). If the remaining battery power becomes low while the camera and the printer are connected, the alarm beeps. If this happens during printing, stop printing at once. If not printing, disconnect the USB connection cable.

1 Connect the camera to a printer via the USB connection cable Ⓐ (supplied).

2 Touch [PictBridge(PTP)].

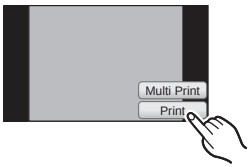
- When the camera is connected to the printer, the cable disconnect prohibit icon [🖂] appears. Do not disconnect the USB cable while [🖂] is displayed.

Note

- Do not use any other USB connection cables except the supplied one.
  Use of cables other than the supplied USB connection cable may cause malfunction.
- Before connecting or disconnecting the AC adaptor (optional), turn the camera off.
- Before inserting or removing a card, turn the camera off, and disconnect the USB connection cable.
- Motion pictures cannot be printed out.

Selecting a single picture and printing it

1 **Drag the screen horizontally to select an image, and then touch [Print].**



2 **Touch [Print start].**

- Refer to P133 for the items which can be set before starting to print the pictures.
- Disconnect the USB connection cable after printing.

Selecting multiple pictures and printing them

1 **Touch [Multi Print].**

2 **Touch the item.**

- If the print check screen has appeared, select [Yes], and print the pictures.

Item	Description of settings
[Multi Select]	Multiple pictures are printed at one time. • Select the picture you wish to print. (Touch the same picture again to cancel the selection) • After the pictures have been selected, touch [Set].
[Select All]	Prints all the stored pictures.
[Print Set (DPOF)]	Prints the pictures set in [Print Set] only. (P108)
[Favorite]	Prints the pictures set as favorites only. (P107)

3 **Touch [Print start].**

- Refer to P133 for the items which can be set before starting to print the pictures.
- Disconnect the USB connection cable after printing.

Print Settings

Select and set the items both on the screen in step 2 of the "Selecting a single picture and printing it" and in step 3 of the "Selecting multiple pictures and printing them" procedures.

- When you want to print pictures on a paper size or a layout which is not supported by the camera, set [Paper Size] or [Page Layout] to [] and then set the paper size or the layout on the printer. (For details, refer to the operating instructions of the printer.)
- When [Print Set (DPOF)] has been selected, the [Print with Date] and [Num.of prints] items are not displayed.

[Print with Date]

Item	Description of settings
[ON]	Date is printed.
[OFF]	Date is not printed.

- If the printer does not support date printing, the date cannot be printed on the picture.
- Depending on the printer, the date print settings of the printer may take precedence so check if this is the case.
- When printing images with [Date Stamp] or [Text Stamp], please remember to set Print With Date to [OFF] or the date will print on top.

Note

When asking the photo shop to print the pictures

- By stamping the date using [Date Stamp] (P89) or [Text Stamp] (P102) or setting date printing at the time of the [Print Set] (P108) setting before going to a photo shop, the dates can be printed at the photo shop.

[Num.of prints]

You can set the number of prints up to 999.

[Paper Size]

Item	Description of settings
🖨	Settings on the printer are prioritised.
[L/3.5″×5″]	89 mm×127 mm
[2L/5″×7″]	127 mm×178 mm
[POSTCARD]	100 mm×148 mm
[16:9]	101.6 mm×180.6 mm
[A4]	210 mm×297 mm
[A3]	297 mm×420 mm
[10×15cm]	100 mm×150 mm
[4″×6″]	101.6 mm×152.4 mm
[8″×10″]	203.2 mm×254 mm
[LETTER]	216 mm×279.4 mm
[CARD SIZE]	54 mm×85.6 mm

• Paper sizes not supported by the printer will not be displayed.

[Page Layout] (Layouts for printing that can be set with this unit)

Item	Description of settings
🖨	Settings on the printer are prioritised.
1	1 picture with no frame on 1 page
1	1 picture with a frame on 1 page
2	2 pictures on 1 page
4	4 pictures on 1 page

• An item cannot be selected if the printer does not support the page layout.

■ Layout printing

When printing a picture several times on 1 sheet of paper

For example, if you want to print the same picture 4 times on 1 sheet of paper, set [Page Layout] to [4] and then set [Num.of prints] to 4 for the picture that you want to print.

When printing different pictures on 1 sheet of paper

For example, if you want to print 4 different pictures on 1 sheet of paper, set [Page Layout] to [4] and then set [Num.of prints] to 1 for each of the 4 pictures.

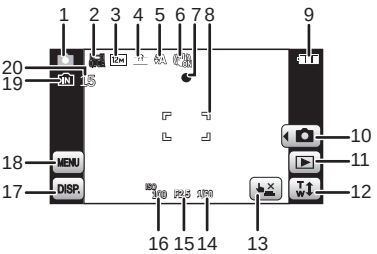
Note

- The camera is receiving an error message from the printer when the [●] indication lights orange during printing. After finishing printing, make sure there are no problems with the printer.
- If the number of prints is high, the pictures may be printed several times. In this case, the remaining number of prints indicated may differ from the number set.

Screen Display

■ In recording

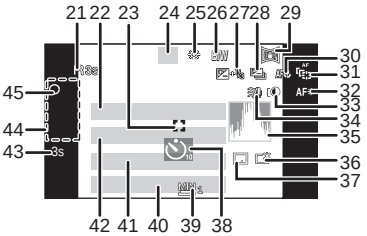
Recording in Normal Picture Mode [📷] (Initial setting)



1 Recording Mode
2 Recording quality (P91)
3 Picture size (P75)
4 Quality (P76)
5 Flash Mode (P71)
6 Optical Image Stabilizer (P89)/((📷)): Jitter alert (P20)
7 Focus (P22)
8 AF area (P22)
9 Battery indication (P9)
10 Recording Mode selection (P18)
11 Playback Mode selection (P95)
12 Zooming with touch operation (P51)
13 Touch shutter (P21)
14 Shutter speed (P19)
15 Aperture value (P19)
16 ISO sensitivity (P77)
17 Display (P46)
18 Menu (P36)
19 Built-in memory (P13)
: Card (P13) (displayed only during recording)
20 Number of recordable pictures* (P15)

* [+99999] is displayed if there are more than 100,000 pictures remaining.

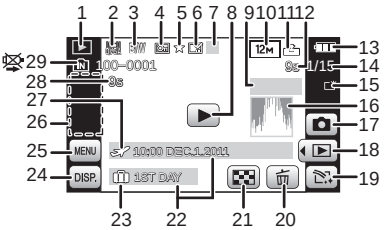
■ **In recording (after settings)**



21 Available recording time (P26): R8m30s ∗1
22 Number of days that have passed since the departure date∗2 (P68)
Name∗3 (P56)
23 Spot AF area (P80)
24 Motion Deblur (P31)
25 White Balance (P78)
26 Color Mode (P87)
27 Exposure Compensation (P83)
28 Auto Bracket (P84)
: Burst (P87)
29 Active Mode (P92)
30 Macro Mode (P81)
31 Auto Focus Mode (P80)
32 AF Assist Lamp (P88)
33 Intelligent Exposure (P85)
34 Wind cut (P92)
35 Histogram (P40)
36 LCD Mode (P39)
: LCD power save (P41)
37 Date Stamp (P89)
38 Self-timer Mode (P74)
39 Minimum shutter speed (P85)
40 Zoom/Extended Optical Zoom (P49)/
Digital Zoom (P49, 86)/Intelligent Zoom (P49): EZ i.ZOOM W T 1X
41 Current date and time/: Travel destination setting∗2 (P70)
42 Age∗3 (P56)
Location∗2 (P68)
43 Elapsed recording time (P26)
44 Shortcut setting area (P52)
45 Recording state

∗1 “h” is an abbreviation for hour, “m” for minute and “s” for second.
∗2 This is displayed for about 5 seconds when the camera is turned on, after setting the clock and after switching from Playback Mode to Recording Mode.
∗3 This is displayed for about 5 seconds when this unit is turned on in [Baby1]/[Baby2] or [Pet] in Scene Mode.

■ **In playback**



1 Playback Mode (P95)
2 / : Recording quality (P91)
3 Color Mode (P87)
4 Protected picture (P110)
5 Favorites (P107)
6 Date/Text stamped display (P89, 102)
7 My Photo Album registration (P116)
8 Playback (Motion Picture) (P28)
9 : Number of prints (P108)
: Beauty Retouch (P113)
: Art Retouch (P115)
10 Picture size (P75)
11 Quality (P76)
12 Elapsed playback time (P28): R8m30s ∗1
13 Battery indication (P9)
14 Picture number/Total pictures
15 Power LCD (P39)
: LCD power save (P41)
16 Histogram (P40)
17 Recording Mode selection (P18)
18 Playback Mode selection (P95)
19 Application (P35)
20 Delete (P33)
21 Multi Playback (P25)
22 Recording information (P46)
23 Number of days that have passed since the departure date (P68)
Age (P56)
24 Display (P46)
25 Menu (P36)
26 Shortcut setting area (P52)
27 Recorded date and time/World Time (P70)/Name∗2 (P56, 65)/Location∗2 (P68)/Title∗2 (P101)
28 Motion picture recording time (P28): R8m30s ∗1
29 Folder/File number (P129)
Built-in memory (P13)
Cable disconnection warning icon (P131)

∗1 “h” is an abbreviation for hour, “m” for minute and “s” for second.
∗2 It is displayed in order of [Title], [Location], [Name] ([Baby1]/[Baby2], [Pet]), [Name] ([Face Recog.]).

Cautions for Use

Optimal use of the camera

Keep this unit as far away as possible from electromagnetic equipment (such as microwave ovens, TVs, video games etc.).

- If you use this unit on top of or near a TV, the pictures and/or sound on this unit may be disrupted by electromagnetic wave radiation.
- Do not use this unit near cell phones because doing so may result in noise adversely affecting the pictures and/or sound.
- Recorded data may be damaged, or pictures may be distorted, by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by microprocessors may adversely affect this unit, disturbing the pictures and/or sound.
- If this unit is adversely affected by electromagnetic equipment and stops functioning properly, turn this unit off and remove the battery or disconnect AC adaptor (optional). Then reinsert the battery or reconnect AC adaptor and turn this unit on.

Do not use this unit near radio transmitters or high-voltage lines.

- If you record near radio transmitters or high-voltage lines, the recorded pictures and/or sound may be adversely affected.

Always use the supplied cords and cables. If you use optional accessories, use the cords and the cables supplied with them.
Do not extend the cords or the cables.

Do not spray the camera with insecticides or volatile chemicals.

- If the camera is sprayed with such chemicals, the body of the camera may be damaged and the surface finish may peel off.
- Do not keep rubber or plastic products in contact with the camera for a long period of time.

Cleaning

Before cleaning the camera, remove the battery or the DC coupler (optional), or disconnect the power plug from the outlet. Then wipe the camera with a dry soft cloth.

- When the camera is soiled badly, it can be cleaned by wiping the dirt off with a wrung wet cloth, and then with a dry cloth.
- Do not use solvents such as benzine, thinner, alcohol, kitchen detergents, etc., to clean the camera, since it may deteriorate the external case or the coating may peel off.
- When using a chemical cloth, be sure to follow the accompanying instructions.

About the LCD monitor

- Do not press the LCD monitor with excessive force. Uneven colors may appear on the LCD monitor and it may malfunction.
- If the camera is cold when you turn it on, the picture on the LCD monitor will be slightly darker than usual at first. However, the picture will return to normal brightness when the internal temperature of the camera increases.

Extremely high precision technology is employed to produce the LCD monitor screen. However, there may be some dark or bright spots (red, blue or green) on the screen. This is not a malfunction. The LCD monitor screen has more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. The spots will not be recorded on pictures on the built-in memory or a card.

About the Lens

- Do not press against the lens with excessive force.
- Do not leave the camera with the lens facing the sun, as rays of light from the sun may cause it to malfunction. Also, be careful when placing the camera outside or near a window.

Battery

The battery is a rechargeable lithium ion battery. Its ability to generate power comes from the chemical reaction that takes place inside it. This reaction is susceptible to the surrounding temperature and humidity. If the temperature is too high or too low, the operating time of the battery will become shorter.

Always remove the battery after use.
- Place the removed battery in a plastic bag, and store or carry away from metallic objects (clips, etc.).

If you drop the battery accidentally, check to see if the body of the battery and the terminals are damaged.
- Inserting a damaged battery in the camera will damage the camera.

Bring charged spare batteries when going out.
- Be aware that the operating time of the battery becomes shorter in low temperature conditions such as at a ski resort.
- When you travel, do not forget to bring the battery charger (supplied) so that you can charge the battery in the country that you are traveling in.

Dispose of unusable battery.
- The battery has a limited life.
- Do not throw the battery into fire because it may cause an explosion.
- The unusable battery should be discarded in accordance with battery recycling laws. Call the RBRC hotline at 1-800-822-8837 for information.

Do not allow battery terminals to come into contact with metal objects (such as necklaces, hairpins etc.).
- This can cause short circuiting or heat generation and you may be badly burned if you touch a battery.

Charger

- If you use the battery charger near a radio, the radio reception may be disturbed.
- Keep the charger 1 m (3.28 feet) or more away from radios.
- The charger may generate whirring sounds when it is being used. This is not a malfunction.
- After use, be sure to disconnect the power supply device from the electrical outlet. (A very small amount of current is consumed if it is left connected.)
- Keep the terminals of the charger and battery clean.

About 3D

■ About 3D viewing

Anyone who is hyper sensitive to light, suffers from heart disease or is otherwise unwell should avoid viewing 3D pictures.

• Doing may have an adverse affect on such medical conditions.

If you feel tired, uncomfortable or otherwise strange when viewing 3D pictures, stop viewing at once.

• Continuing to view may cause illness.
• Please rest appropriately after stopping the viewing.

When viewing 3D pictures, we recommend taking a break every 30 to 60 minutes.

• Viewing for extended periods may cause eye-fatigue.

Short-sighted or long-sighted persons, those with differences in the sight of their right and left eyes, and those with astigmatism are advised to correct their vision by wearing glasses etc.

Stop viewing if you can clearly see a double image while viewing 3D pictures.

• There are differences in the way that different people experience 3D pictures. Please correct your sight appropriately before viewing 3D pictures.
• You can change the 3D setting of your television or 3D output setting of the unit to 2D.

When viewing 3D pictures on a 3D compatible television, position yourself a distance away that is least 3 times the effective height of the television.

• (Recommended distance): For 42″; approx. 1.6 m (5.25 feet), for 46″; approx. 1.7 m (5.58 feet), for 50″; approx. 1.9 m (6.23 feet), for 54″; approx. 2.0 m (6.56 feet).
• Viewing from a distance closer than the recommended distance may lead to eye-fatigue.

Card

Do not leave the card where the temperature is high, where electromagnetic waves or static electricity are easily generated or exposed to direct sunlight.
Do not bend or drop the card.
- The card may be damaged or the recorded content may be damaged or deleted.
- Put the card in the card case or the storage bag after use and when storing or carrying the card.
- Do not allow dirt, dust or water to get into the terminals on the back of the card and do not touch the terminals with your fingers.

Notice for when transferring to another party, or disposing of the memory card
- "Format" or "delete" using the camera or a PC will only modify the file management information, and it will not erase the data in the memory card completely.
  It is recommended to physically destroy the memory card or use the commercially available computer data deletion software to completely erase the data in the memory card before transferring to another party or disposing.
  Management of data in the memory card is the responsibility of the user.

About the personal information

If a name or birthday is set for [Baby1]/[Baby2]/Face Recognition function, this personal information is kept in the camera and recorded in the image.

Disclaimer
- Information including personal information may be altered or vanish due to erroneous operation, effect of static electricity, accident, malfunction, repair, or other handlings.
  Please note in advance that Panasonic is not liable in any way for any direct or indirect damage from the alteration or vanishing of information or personal information.

When requesting a repair, transferring to another party or disposing
- Reset the settings to protect the personal information. (P42)
- If there are pictures stored in the built-in memory, copy them into the memory card (P112) before formatting the built-in memory (P45) as needed.
- Remove the memory card from the camera when requesting a repair.
- Built-in memory and settings may return to factory default when camera is repaired.
- Please contact the dealer where you purchased the camera or your nearest Service Center if above operations are not possible due to malfunction.

When transferring to another party, or disposing of the memory card, please refer to "Notice for when transferring to another party, or disposing of the memory card" on P142.

When not using the camera for a long period of time

- Store the battery in a cool and dry place with a relatively stable temperature: (Recommended temperature: 15 °C to 25 °C (59 °F to 77 °F), Recommended humidity: 40%RH to 60%RH)
- Always remove the battery and the card from the camera.
- If the battery is left inserted in the camera, it will discharge even if the camera is turned off. If the battery continues to be left in the camera, it will discharge excessively and may become unusable even if charged.
- When storing the battery for a long period of time, we recommend charging it once a year. Remove the battery from the camera and store it again after it has completely discharged.
- We recommend storing the camera with a desiccant (silica gel) when you keep it in a closet or a cabinet.

About the picture data

- Recorded data may be damaged or lost if the camera breaks down due to inappropriate handling. Panasonic will not be liable for any damage suffered due to loss of recorded data.

About tripods or unipods

- When you use a tripod, make sure the tripod is stable when this unit is attached to it.
- You may not be able to remove the card or the battery when using a tripod or unipod.
- Make sure that the screw on the tripod or unipod is not at an angle when attaching or detaching the camera. You may damage the screw on the camera if you use excessive force when turning it. Also, the camera body and the rating label may be damaged or scratched if the camera is attached too tightly to the tripod or unipod.
- Read the operating instructions for the tripod or unipod carefully.
- Some tripods or unipods cannot be attached when the DC coupler (optional) and AC adaptor (optional) are connected.

Message Display

Confirmation messages or error messages will be displayed on the screen in some cases. The major messages are described below as examples.

[This picture is protected]

→ Delete the picture after canceling the protect setting. (P110)

[Some pictures cannot be deleted]/[This picture cannot be deleted]

- Pictures not based on the DCF standard cannot be deleted.
  → If you want to delete some pictures, format the card after saving necessary data on a PC etc. (P45)

[Cannot be set on this picture]

- [Title Edit], [Text Stamp] or [Print Set] cannot be set for pictures not based on the DCF standard.

[Not enough space on built-in memory]/[Not enough memory on the card]

- There is no space left on the built-in memory or the card.
- When you copy pictures from the built-in memory to the card (batch copy), the pictures are copied until the capacity of the card becomes full.

[Some pictures cannot be copied]/[Copy could not be completed]

- The following pictures cannot be copied.
  – When a picture with the same name as the picture to be copied exists in the copy destination. (Only when copying from a card to the built-in memory.)
  – Files not based on the DCF standard.
- Moreover, pictures recorded or edited by other equipment may not be copied.

[Built-In Memory Error
Format built-in memory?]

- This message will be displayed when you format the built-in memory on a PC.
  → Format the built-in memory on the camera again. (P45) The data on the built-in memory will be deleted.

[Memory card error.
This card cannot be used in this camera.
Format this card?]

- It is a format that cannot be used with this unit.
  → Insert a different card.
  → Format the card again with the camera after saving necessary data on a PC etc. (P45) Data will be deleted.

[Please turn camera off and then on again]/[System Error]

- This message appears when the camera is not operating properly.
  → Turn the camera off and on. If the message persists, contact the dealer or your nearest Service Center.

[Memory card parameter error]/[This memory card cannot be used]

→ Use a card compatible with this unit. (P13)
– SD Memory Card (8 MB to 2 GB)
– SDHC Memory Card (4 GB to 32 GB)
– SDXC Memory Card (48 GB, 64 GB)

[Insert SD card again]/[Try another card]

• An error has occurred accessing the card.
→ Insert the card again.
→ Insert a different card.

**[Read Error/Write Error
Please check the card]**

• It has failed to read or write data.
→ Remove the card after turning the power [OFF]. Insert the card again, turn the power on, and try to read or write the data again.
• The card may be broken.
→ Insert a different card.

[Motion recording was cancelled due to the limitation of the writing speed of the card]

• Use a card with SD Speed Class with “Class 4” or higher when recording motion pictures in [AVCHD].
Also, use a card with SD Speed Class with “Class 6” or higher when recording motion pictures in [Motion JPEG].
• In the event that it stops even after using a “Class 4” card or higher, the data writing speed has deteriorated so it is recommended to make a backup and then format (P45).
• Depending on the type of the card, motion picture recording may stop in the middle.

[Cannot record due to incompatible format(NTSC/PAL) data on this card.]

→ If you want to delete some pictures, format the card after saving necessary data on a PC etc. (P45)
→ Insert a different card.

[A folder cannot be created]

• A folder cannot be created because there are no remaining folder numbers that can be used.
→ Format the card after saving necessary data on a PC etc. (P45) If you execute [No.Reset] in the [Setup] menu after formatting, the folder number is reset to 100. (P42)

[Picture is displayed for 16:9 TV]/[Picture is displayed for 4:3 TV]

• Select [TV Aspect] in the [Setup] menu if you want to change the TV aspect. (P43)
• This message also appears when the USB connection cable is connected to the camera only. In this case, connect the other end of the USB connection cable to a PC or a printer. (P128, 131)

Troubleshooting

First, try out the following procedures (P146–154).

If the problem is not resolved, **it may be improved by selecting [Reset] (P42) on the [Setup] menu when taking pictures**.

Battery and power source

The camera cannot be operated even when it is turned on. The camera turns off immediately after it is turned on.

- The battery is exhausted. Charge the battery.
- If you leave the camera on, the battery will be exhausted.
  → Turn the camera off frequently by using the [Sleep Mode] etc. (P41)

This unit is turned off automatically.

- If you connect to a TV compatible with VIERA Link with a HDMI mini cable (optional) and turn off the power on the TV with the remote control for the TV, the power on this unit also turns off.
  → If you are not using VIERA Link, set [VIERA Link] to [OFF]. (P44)

Card/battery door does not close.

- Insert the battery securely all the way in. (P11)

Recording

The picture cannot be recorded.

- Is the mode set to [Rec] Mode? (P18)
- Is there any memory remaining on the built-in memory or the card?
  → Delete the pictures which are not necessary to increase the available memory. (P33)
- You may not be able to record for a short while after turning the power [ON] when using a large capacity card.

The recorded picture is whitish.

- The picture can become whitish if there is dirt e.g. fingerprints on the lens.
  → If the lens is dirty, turn on the camera, eject the lens barrel and gently wipe the lens surface with a soft dry cloth.

The recorded picture is too bright or dark.

→ Check that the exposure is correctly compensated. (P83)
- Setting the [Min. Shtr Speed] to faster speed might make the picture darker.
  → Set the [Min. Shtr Speed] (P85) to slower speed.

Multiple pictures are taken at one time.

→ Set [Auto Bracket] (P84) or [Burst] (P87) of the [Rec] Mode menu to [OFF].
- Has [Hi-Speed Burst] (P57) or [Flash Burst] (P58) in Scene Mode been set?

The subject is not focused properly.

- The focus range varies depending on the Recording Mode.
  → Set to the proper mode for the distance to the subject.
- The subject is beyond the focus range of the camera. (P22)
- There is camera shake (jitter) or the subject is moving slightly. (P20)

The recorded picture is blurred.
The Optical Image Stabilizer is not effective.

→ The shutter speed becomes slower when pictures are taken in dark places so hold the camera firmly with both hands to take the pictures. (P20)
→ When taking pictures at a slow shutter speed, use the self-timer. (P74)

Taking pictures using Auto Bracket is not possible.

- Is there any memory remaining on the built-in memory or the card?

The recorded picture looks rough.
Noise appears on the picture.

- Is the ISO sensitivity high or the shutter speed slow?
  (ISO sensitivity is set to [AUTO] when the camera is shipped. Therefore, when taking pictures indoors etc. noise will appear.)
  → Decrease the ISO sensitivity. (P77)
  → Set [Color Mode] to [NATURAL]. (P87)
  → Take pictures in bright places.
- Has [High Sens.] or [Hi-Speed Burst] in the Scene Mode been set? If so, the resolution of the recorded picture decreases slightly because of high sensitivity processing, but this is not a malfunction.

The brightness or the hue of the recorded picture is different from the actual scene.

- If recording under fluorescent light, the brightness or the hue may change slightly when the shutter speed becomes fast. This occurs due to the characteristics of fluorescent light. It is not a malfunction.

When recording pictures or half-pressing the shutter button, reddish stripes may appear on the LCD monitor. Alternatively, part or all of the LCD monitor may turn a reddish color.



- This is a characteristic of CCDs, and it appears when the subject has a bright part. Some unevenness may occur in the surrounding areas, but this is not a malfunction.
  It is recorded in motion pictures but is not recorded on still pictures.
- It is recommended that you take pictures while taking care not to expose the screen to sunlight or any other source of strong light.

Motion picture recording stops in the middle.

- Use a card with SD Speed Class with “Class 4” or higher when recording motion pictures in [AVCHD].
  Also, use a card with SD Speed Class with “Class 6” or higher when recording motion pictures in [Motion JPEG].
- Depending on the type of the card, recording may stop in the middle.
  → If motion picture recording stops during use of a card of at least “Class 4” or if you use a card that has been formatted on a PC or other equipment, the data-writing speed is lower. In such cases, we recommend that you make a backup of the data and then format (P45) the card in this unit.

The subject cannot be locked. (AF track fails)

- If the subject has different colors as the periphery, set the AF area to those colors specific to the subject by aligning that area with the AF area. (P48)

Lens

Recorded image may be warped, or nonexistent color is surrounding the subject.

- It is possible that the subject may be warped slightly, or the borders get colored, depending on the zoom magnification, due to the characteristics of the lens. Also, the peripherals of the image might look warped because the perspective is enhanced when the wide angle is used. This is not a malfunction.

LCD monitor

The LCD monitor becomes darker or brighter for a moment.

- This phenomenon appears when you press the shutter button halfway to set the aperture value and does not affect the recorded pictures.
- This phenomenon also appears when the brightness changes when the camera is zoomed or when the camera is moved. This is because of operation of the automatic aperture of the camera, and it is not a malfunction.

The LCD monitor flickers indoors.

- The LCD monitor may flicker for a few seconds after turning the camera on indoors under fluorescent light. This is not a malfunction.

The LCD monitor is too bright or dark.

- Is [LCD Mode] active? (P39)

Black, red, blue and green dots appear on the LCD monitor.

- This is not a malfunction.
  These pixels do not affect the recorded pictures.

Noise appears on the LCD monitor.

- In dark places, noise may appear to maintain the brightness of the LCD monitor. This does not affect the pictures you are recording.

Flash

The flash is not activated.

- Is the flash setting set to [⊗]?
  → Change the flash setting. (P71)
- Flash Mode is not available when [Auto Bracket] (P84) or [Burst] (P87) have been set.

Flash is activated several times.

- The flash is activated twice when Red-Eye Reduction (P71) has been set.
- Has [Flash Burst] (P58) in Scene Mode been set?

Playback

The picture being played back is rotated and displayed in an unexpected direction.

- [Rotate Disp.] (P44) is set to [📺📷] or [📺].

The picture is not played back.
There are no recorded pictures.

- Is the mode set to [Playback] Mode? (P24)
- Is there a picture on the built-in memory or the card?
  → The pictures on the built-in memory appear when a card is not inserted. The picture data on the card appears when a card is inserted.
- Is this a folder or picture which was processed in the PC? If it is, it cannot be played back by this unit.
  → It is recommended to use the “PHOTOfunSTUDIO” software in the CD-ROM (supplied) to write pictures from PC to card.
- Has [Filtering Play] been set for playback?
  → Change to [Normal Play]. (P95)

The folder number and the file number are displayed as [—] and the screen turns black.

- Is this a non-standard picture, a picture which has been edited using a PC or a picture which was taken by another make of digital camera?
- Did you remove the battery immediately after picture-taking or did you take the picture using a battery with a low remaining charge?
  → Format the data to delete the pictures mentioned above. (P45)
  (Other pictures will be deleted as well and it will not be possible to restore them. Therefore, check well before formatting.)

With a Calendar Search, pictures are displayed on dates differing from the actual dates on which the pictures were taken.

- Is the clock in the camera set properly? (P16)
- When pictures edited using a PC or pictures taken by other equipment are searched, they may be displayed on dates differing from the actual dates on which the pictures were taken.

White round spots like soap bubbles appear on the recorded picture.

- If you take a picture with the flash in a dark place or indoors, white round spots may appear on the picture caused by the flash reflecting of particles of dust in the air. This is not a malfunction.
  A characteristic of this is that the number of round spots and their position differ in every picture.



Red part of the recorded image has changed color to black.

- When Digital Red-Eye Correction ([ϟA], [ϟ], [ϟS]) is in operation, if you take a picture of a subject with red color surrounded by a skin tone color, that red part may be corrected to black by the Digital Red-Eye Correction function.
  → It is recommend to take the picture with Flash Mode set to [ϟA], [ϟ] or [⊘], or [Red-Eye Removal] on the [Rec] Mode menu set to [OFF]. (P88)

[Thumbnail is displayed] appears on the screen.

- Is it a picture that has been recorded with other equipment? In such cases, these pictures may be displayed with a deteriorated picture quality.

The sound of the recorded motion pictures sometimes breaks up.

- This unit automatically adjusts the aperture during motion picture recording. At such times, the sound may break up. This is not a malfunction.

Motion pictures recorded with this model can not be played back on other equipment.

- Playback of motion pictures recorded with this unit (Motion JPEG) may not be possible with other companies' digital cameras. Also, Panasonic's digital cameras (LUMIX)✳ may also not be able to play them back.
  ✳ Introduced prior to December 2008, and FS and LS series introduced in 2009.
- Motion pictures recorded with [AVCHD] cannot be played back with devices that are not compatible with AVCHD. Some AVCHD compatible devices may not be able to play them correctly.

TV, PC and printer

The picture does not appear on the television.

- Is the camera connected to the TV correctly?
  → Set the TV input to External Input Mode.

The display areas on the TV screen and the camera's LCD monitor are different.

- Depending on the TV model, the pictures may be extended horizontally or vertically or they may be displayed with their edges cut off.

The motion pictures cannot be played back on a TV.

- Are you trying to play back the motion pictures by directly inserting the card in the card slot of the TV?
  → Connect the camera to the TV with the AV cable (supplied), or with the HDMI mini cable (optional), and then play back the motion pictures on the camera. (P117, 118)

The picture is not displayed fully on the TV.

→ Check [TV Aspect] setting. (P43)

VIERA Link does not work.

- Is it connected properly with the HDMI mini cable (optional)? (P118)
  → Confirm that the HDMI mini-cable (optional) is firmly fitted.
- Is the [VIERA Link] on this unit set to [ON]? (P44)
  → Depending on HDMI terminal of the TV, the input channel may not switch automatically. In this case, use the remote control for the TV to switch input. (For details on how to switch input, please read the operating instructions for the TV.)
  → Check the VIERA Link setting on the connected device.
  → Turn the power to the unit off and then back on again.
  → Set [VIERA Link] to [Off] on the TV and then turn it back to [On]. (Refer to the operating instructions of the TV for details.)

The picture cannot be transferred when the camera is connected to a PC.

- Is the camera connected to the PC correctly?
- Is the camera recognized by the PC correctly?
  → Set to [PC] in [USB Mode]. (P42, 128)

The card is not recognized by the PC. (The built-in memory is recognized.)

→ Disconnect the USB connection cable. Connect it again while the card is inserted in the camera.

The card is not recognized by the PC. (SDXC memory card is used)

→ Check if your PC is compatible with SDXC memory cards.
http://panasonic.net/avc/sdcard/information/SDXC.html
→ A message prompting to format the card may be displayed when connecting, but do not format.
→ If the [Access] displayed on the LCD monitor does not disappear, disconnect the USB connection cable after turning off the power.

There is a problem trying to upload to YouTube or Facebook.

→ Confirm that the login information (login ID/user name/mail address/password) is correct.
→ Confirm that the PC is connected to the Internet.
→ Confirm that resident software such as virus protection software or firewall is not blocking access to YouTube or Facebook.
→ Confirm with YouTube or Facebook as well.

The picture cannot be printed when the camera is connected to a printer.

• Pictures cannot be printed using a printer which does not support PictBridge.
→ Set to [PictBridge(PTP)] in [USB Mode]. (P42, 131)

The ends of the pictures are cut at printing.

→ When using a printer with a Cropping or borderless printing function, cancel this function before printing. (For details, refer to the operating instructions for the printer.)
→ When you order photo studios to print pictures, ask the photo studio if the pictures can be printed with both ends.

Others

An unreadable language was selected by mistake.

→ Touch [MENU], select the [Setup] menu icon [🔧]. Then select [🌐] to set the desired language. (P45)

A red lamp sometimes turns on when the shutter button is pressed halfway.

• In dark places, the AF Assist Lamp (P88) lights red to make it easier to focus on a subject.

The AF Assist Lamp does not turn on.

• Is [AF Assist Lamp] on the [Rec] Mode menu set to [ON]? (P88)
• The AF Assist Lamp does not turn on in bright places.

The camera becomes warm.

• The surface of the camera may become warm during use. This does not affect the performance or quality of the camera.

The lens clicks.

- When the brightness changes due to zoom or camera movement etc., the lens may click and the picture on the screen may drastically change. However, the picture is not affected. The sound is caused by the automatic adjustment of the aperture. This is not a malfunction.

The clock is reset.

- If you do not use the camera for a long time, the clock may be reset.
  → [Please set the clock] message will be displayed; please re-set the clock. (P16)

When pictures are taken using the zoom, they are slightly distorted and the areas around the subject contain colors which are not actually present.

- It is possible that the subject may be warped slightly, or the borders get colored, depending on the zoom magnification, due to the characteristics of the lens, but this is not a malfunction.

Zooming stops instantaneously.

- When using the Extended Optical Zoom or the Intelligent Zoom, the zooming action will stop temporarily. This is not a malfunction.

Zoom does not go up to maximum magnification.

- Is the camera set to Macro Zoom Mode? (P81)
  Maximum zoom during Macro Zoom Mode is 3× Digital Zoom.

The file numbers are not recorded consecutively.

- When you perform an operation after taking a certain action, the pictures may be recorded in folders with different numbers from the ones used prior to the operation.

The file numbers are recorded in ascending order.

- If the battery was inserted or removed without first turning the camera's power off, the folder and file numbers for the pictures taken will not be stored in the memory. When the power is then turned back on and pictures are taken, they may be stored under file numbers which should have been assigned to previous pictures.

A different thing gets selected from what you touched.

- Perform the calibration (P45).

When the camera is left alone, the slide show is suddenly displayed.

- This is [Auto Demo] to introduce the features of this unit.

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